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BY

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Address.

HISTORY OF THE CLINICAL RECOGNITION OF GASTRIC ULCER.[*]

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Succinct histories of the development of clinical conceptions on special diseases are very rare. This is partially explicable by the scarcity of historical data concerning early clinical thinking and by the confusion that has been brought into the accounts of the classical writers of medicine by the facts that the identical disease is designated with different names by different authors, and also that the exact diagnosis was rarely verified by operation or autopsy.

In the following sketch of the history of the clinical recognition of gastric ulcer, conclusions were based only on such cases as were substantiated in the manner just mentioned. In the writing of Hippocrates we find no statement which would justify us in concluding that the "Father of Medicine" was familiar with ulcer of the stomach as we conceive it to-day.

It is stated (Lebert) that Hippocrates treated Pericles for intense abdominal pain (gastralgia) by hellebore and flaxseed poultices.[1] I shall return to the Hippocratic literature on this subject in the latter part of this article.

A careful review of a German translation of Galen reveals no knowledge of peptic ulcer, though undoubtedly both Hippocrates and Galen give accounts of vomiting of blood in the sequence of digestive disturbances and abdominal pain.

It is impossible to personally scrutinize the writings of the historical clinicians for any statement that might be interpreted as a distinct clinical recognition of gastric ulcer. According to Lebert,[2] from whom also Welch[3] has derived most of his information concerning the history of clinical recognition of peptic ulcer, it is not until the sixteenth century that a clinical record available for our purpose can be found. It occurs in the writings of Johann Bauhin, the elder brother of Caspar Bauhin (1550-1624), and may be found in "Boneti Sepulchretum." It refers to a physician's wife, 18 years old, who suddenly showed symptoms of a perforation into the peritoneum, and died four days afterwards. In her abdomen was discovered besides gas, fluids and food remnants, a perforation in the middle of the stomach near the fundus; there were black contents in the stomach and clotted blood had been evacuated by the bowels.

From the second half of the sixteenth century dates another observation by Marcellus Donatus, which refers to a man 59 years old, who, after continued vomiting and pains in the stomach, was found at the postmortem examination to have near the pylorus at the lower end of the stomach an ulcer—*tunicam interiorem exesam*—a very graphic descriptive expression.

Courtial describes an oval opening in the anterior part of the stomach, with callous edges in a young woman who had suffered from gastric symptoms since her youth.

Littré found in the case of a man who had suffered from various affections of the stomach, and finally from hemorrhages, a round ulcer near the pylorus.

One of the first ulcers leading to a fistula in the stomach which is recorded in the literature so far known, seems to be associated with a case of Duverney. Similar observations were described in the first half of the previous century by van Swieten, Klein, Wenker, Iodac, Atkinson, Petit, Eckmuller, Cireaud, Helm, and Kade. It is not, however, quite certain to what the trouble in the various cases might rightly have been attributed, whether to the presence of a simple ulcer, or to a circumscribed abscess of the stomach region or a combination of both. The probabilities are, however, that the observation of van Swieten and Wenker were genuine cases of peptic ulcer.

Records of cases of healed ulcer of the stomach we already possess for the sixteenth and seventeenth centuries, by Forestus and Schenk von Grafenberg (1531 to 1598). In this connection should be mentioned an observation from the close of the preceding century by Reil, in which the scar of a healed gastric ulcer had become adherent to the mesenteric glands. The radiant formation of such a scar at the lesser curvature of the stomach has been aptly described according to a specimen in Meckel's collection. Older observations concerning abnormal conditions of the form of the stomach, with median contraction, by Blase, Mangold, Heister, Sandifort, Sömmering, Morgagni, etc., allude in a measure to such ulcers. In a number of cases symptoms of chronic stomach trouble existed beforehand, and frequently mention is made of callous bands, which would point to scars of earlier existing ulcers. In the last century mention is often made of adhesions of the stomach to adjacent parts (Mead, Murray, Santessen, Westring, etc.) of rupture of the stomach (principally through an ulcer), of death from excessive hemorrhage, also mainly attributable to a chronic peptic ulcer.

A good brief description, with excellent illustrations, was given at the close of the eighteenth century (in 1793) by Matthew Baillie. To Matthew Baillie unquestionably belongs the credit of having first accurately described, in 1793, the anatomic peculiarities of simple gastric ulcer.[4] At a later date he published three good engravings of this disease.[5] Baillie's concise and admirable description of the morbid anatomy of gastric ulcer was accompanied by clinical data, and seems to have had little or no influence in directing increased attention to this disease.

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[*] Address before the American Gastroenterologic Association, Atlantic City, June, 1904.

[1] I have seen this statement quoted also by Talmage in an address to medical graduates, but have not been able to trace the source nor authority for same.—J. C. H.

[2] Krankheiten d. Magens, Tübingen, 1877, p. 180.

[3] Pepper's System of American Medicine, vol. ii.

By far the best description of this disease up to the date of its publication is by Voigtel, at the beginning of the eighteenth century. The following description is quoted from Lembert:[1] "Frequently ulcers are found in the membranes of the stomach. Oftener they progress from the interior to the exterior; they are merely superficial cancers or perforations. They have in common a peculiar appearance. Frequently they are surrounded by an inflammatory thickening and hardness, and then again it is not possible to detect near or around them any distinctive abnormal formation of the stomach. They appear as if "a piece of the stomach had been cut out with a knife," and the edges so healed as to make a smooth boundary all around the opening; at times the gastric tissue about the opening has condensed." The subsequent remarks point likewise to an admirable knowledge with the whole evolution of the disease on the part of Voigtel and his contemporaries, Meikel, Reil, etc. The words used by Voigtel in describing the appearance of this gastric lesion, namely: "As if a piece of the stomach had been cut out with a knife."—remind one of the expression of Rokitansky[6] used much later, and which is much oftener quoted, namely: "As if a piece of the stomach had been cut out with a punch."

Many observations, accompanied by diverse commentaries, are found in the early scientific literature concerning spontaneous perforations of the stomach, the greater part of which may rightly be classed here.

Toward the end of the eighteenth century we encounter Hunter's theory of the origin of gastric perforations, attributing them to the erosion by the gastric juice; although based on the authority of Spallanzani, this hypothesis lost ground very rapidly, notwithstanding the support given it by a number of important au- orities. Carswell managed to bring it again into sitory favor. In the year 1800 Joseph Morin stated perforation of the stomach was a result of a pro- acted local inflammation of the gastric membranes. He likewise speaks of stagnation in the blood vessels, with a change in the direction of the flow of the blood and autodigestion, as some of the causes. According to the very pretty historic compilation of Lefevre, Lerons and Chaussier, in the year 1808, presented to the Paris Medical Association reports of their observations of perforated gastric ulcers accompanied by adhesions of the spleen.

Very interesting history also is found in the defense of a person by Chaussier against the charge of poisoning, in 1818, when the latter proved that a perforation of the stomach had taken place after previous prolonged ulceration. Similar cases have come up frequently since that time. Cruveilhier relates that there was a movement on foot to attribute the death of one of his cases of chronic gastric ulcer to poisoning, when he proved that the true cause of the perforation in question had been a previously existing ulcer in the stomach. The dissertation of 1819 by Lainé offers for those times very sound opinions about this perforation, and describes the deleterious action of the digestive fluid as succeeding ulceration. He also emphasizes the importance of studying the antecedents of a case. The expression "perforation by erosion" from now on appears more frequently. Lainé also recommends, for forensic reasons, not only chemical inquiry, but also an examination of those parts of the anatomy through which the alleged poison is supposed to have passed into the stomach.

Rausch, in his classification of gastric ruptures, designates those incident to a real ulcer, often with callous edges, as one of the main groups. Similar results are reached by Ebermaier, who, in addition to his own, cites cases by Henkel, Mole, Baron, Gérard, Desgranges, Trinius, Besker, Spitta, and Thomissen. To all these cases he attributes a chronic, many times unknown course, frequently with easily discernible symptoms, especially cardiac symptoms. The frequency with which the rupture takes place near the pylorus is pointed out by him, but he seems to be unable to determine the cause of this phenomenon. Cancer and ordinary inflammation, however, are not regarded as having causal significance.

In 1824, Abercrombie published a brief, but for his time a very remarkable description of this disease. Some of his observations clearly refer to the ulcus simplex; indeed one of the cases reported to him by Wood refers to a perforated ulcer of the duodenum. His confusion of cases of gastric cancer and other malignant growths with those of simple ulcer, shows how undefined his views were.

We now have become acquainted with two phases of the history of chronic ulcer—the first being one of the isolated observations beginning with the tenth century, the second beginning with the close of the eighteenth and with the early part of the nineteenth century, and occupying itself with the establishing of a collection of those isolated observations as done by Voigtel, but emphasizing more of the pathologic anatomic point of view; on the clinical side, too, much attention is paid to the perforation itself.

Cruveilhier has the distinction of being the first to subject this disease both clinically as well as anatomically to a thorough and intelligent pathologic examination. The tenth issue of his great "Pathological Anatomy," from the beginning of the third decade of the nineteenth century, 1829-1835, gives evidence of an extensive personal experience on the subject.

Cruveilhier[6] in the first volume of his work on Pathologic Anatomy, published between the years 1829 and 1835, for the first time clearly distinguished ulcer of the stomach from cancer of the stomach and from ordinary gastritis. He gave an authoritative and full description of gastric ulcer from the anatomic, the clinical and the therapeutic points of view.

Among his observations are those concerning the Greek professor, Gall, from the end of the year 1828 and beginning of the next; one from December, 1829, about a charcoal burner, who died soon after the perforation of his stomach; one from the beginning of the year 1830, concerning the famous chemist, Darcet; one from the same year concerning a gastric ulcer which had cicatrized—and with respect to this case we learn from his twentieth issue that the person in question died in 1834 from a perforated stomach. Not only are the anatomic aspects—i. e., rapidly developing, chronic ulcer, closing up, scarring over, perforation, hemorrhage from the coronary artery of the stomach, from the splenic artery, malformation of the stomach, contraction of the pylorus through the agency of scarring—well described, but also a good foundation is laid for clinical and therapeutic work.

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[4] The Morbid Anatomy of the Most Important Parts of the Human Body, London, 1893, p. 87.

[5] A Series of Engravings, accompanied with explanations, etc., London, 1799.

[6] Lehrbuch d. Pathol. Anatomie.

[6] Anatomie pathologique du Corps humain, vol. I, Paris, 1829-35, No. 10 and No. 20; and vol. II, Paris, 1835-42, No. 30 and No 31.

We thus emerge into the modern phase, in which a correct and broad interpretation of anatomic and clinical facts of the influence of hygiene, diet and therapeutics takes place, and thus order and understanding are introduced into this chaos of observations.

In Germany we are indebted to Rokitansky for a classical treatise on the peptic ulcer, based on a large clinical and pathological experience, well analyzed. This excellent work became rapidly known.

Next to Cruveilhier, Rokitansky has had the greatest influence on the modern conception of gastric ulcer. In 1839 this pathologist gave a description of the disease based on an analysis of 79 cases.[7] The anatomic part of his description has served as a model for all subsequent writers on this subject everywhere. A few years later von Jaksch extended the pathologic knowledge of the gastric ulcer (to be sure, more from his clinical experience than from a strict analysis of bedside records), by a series of thorough clinical investigations.

From 1830 to 1840 observations and compilations appear frequently in the medical literature of almost all countries. According to Lebert,[1] rich collections for causal interpretation are found in the *Bulletins de la Société anatomique de Paris,* also in *Archives générales de Médicine,* in the "Annual Reports" of the last 20 years of Canstatt,[8] the Proceedings of the London Pathological Society, etc. Among the older journal articles and dissertations that have appeared is the Thesis of Duval in the year 1852 (Paris), one of the earliest of the better French compilations. Lebert[1] also refers to the publications of one of his pupils, Bisseger, as containing his own views often expressed in the Zürich clinic, and also an analysis of its rich material, together with clinical histories.

After Virchow, in 1855, developed his views on the hemorrhage-necrotic origin of the simple peptic ulcer, a series of good dissertations appeared under his editorial supervision, among which especial mention should be made of those by Steiner, 1868, and Wollman, 1868. Among the English authors, Crisp, Ashborne, Chambers, Habershon, Handfield-Jones, etc., but especially Brinton, have done excellent work. From the latter emanated the largest compilation, with excellent anatomical and clinical data. Habershon has also made valuable clinical additions to our knowledge of this disease.

From the beginning of scientific inquiry cited in the preceding, to the year 1868, there is, as we have seen, a vast accumulation of clinical data, but out of all of this literature, according to Lebert, not 100 are of genuine objective merit.

Cruveilhier's work of 1856, made known in the *Archives Generales de Medicine,* contains for those times and for the present no new matter beyond what was presented in his previous publications, but impresses us with the great anatomic and clinical experience of this wonderful pathologist.

Trousseau, in his *Clinique Medicale,* gives a review of the essentials, which acts in a stimulating manner on medical thinkers, but is, of course, incomplete, which is to be expected of clinical lectures, however important they otherwise may be.

Bamberger's description is an excellent sketch of the subject. The work of Ziemssen (in his Encyclopedia, Ziemssen's *Handbuch d. spec. Path. u. Therap.*), on the treatment of chronic gastric ulcer, represents the best knowledge of the Münich clinic.

As early as 1845 Schiff shows that hemorrhagic localized infiltrations of the mucous membrane of the stomach result from an irritation of certain parts of the brain. After a number of other experiments, he published the results of his investigations in his "*Leçon sur la digestion.*" In 1852 Lebert became acquainted for the first time with the hemorrhagic type of the growth of chronic gastric ulcer. In 1855 Virchow made known his views on this matter, and brought into general favor the acceptance of a hemorrhagic necrotic origin of the peptic ulcer. Müller has the distinction of having proved, in 1859, that the ligation of the portal vein results in numerous hemorrhagic erosions of the stomach, particularly in the pyloric region. Pavy later on showed the same thing in the case of larger ulcers through ligation of branches of the gastric artery. For the best and most exhaustive experiments on the circumscribed hemorrhagic infiltrates in the mucous membrane of the stomach, we are indebted to Ebstein.

Since the ushering in by Cruveilhier and Rokitansky of the modern era in the history of the gastric ulcer, the era of exact objective investigation, medical literature abounds in articles on this disease. But it can not be said that the importance of these works is at all commensurate with their number or that they have added very materially to the classical descriptions given by Cruveilhier and by Rokitansky. Perhaps most worthy of mention of the works of this later era are the article by Jaksch relating to symptomatology and diagnosis, and of Virchow relating to etiology, the statistical analyses by Brinton, and the contribution to the treatment of the disease by Ziemssen and by Leube.[9] In 1860, Ludwig Müller[10] published an extensive monograph on gastric ulcer. The most modern literature on the subject is contained in the works of Riegel.[11] Prof. Wm. H. Welch[12] gives a short résumé of the history of the clinical recognition and pathology of gastric ulcer, taken largely from Lebert. In the new *Handbuch der Geschichte der Medicin,* by Neuberger and Pagel,[13] the history of gastric ulcer is rather neglectfully treated. It seems that the author, George Korn, had no knowledge of the interesting studies of Abercrombie, Voigtel, Littré, Matthew Baillie, Cruveilhier and the other clinical and pathologic workers mentioned in the preceding. The article is interesting for the histology and pathology of digestion, the history of the stomach tube, etc., but for the history of the development of clinical ideas on any single gastric disease, little help can be obtained from this otherwise very interesting article. On page 693 of this article, Korn asserts that Hippocrates already described some of the symptoms of gastric ulcer as a special disease which was called *"sphacelous disease,"* or *"morbus niger,"* because black masses in the form of clumps were either vomited or passed by the bowels. I have looked up this passage in Hippocrates[14] and, while there is great temptation to credit the "Father of Medical Literature" with the first trustworthy knowledge of gastric ulcer, I regret to report that his account is not even approximately correct for this disease, but would cover that also of gastric carcinoma and even of secondary gastric hemorrhage, due to cirrhosis of the liver. Some have thought the dietetic treatment which Hippocrates recommended for his *morbus niger* gave evidence that he recognized it to be the disease we know as gastric or peptic ulcer. But even this hope is destroyed by a *critical investigation of the diet of* Hippocrates *for this* purpose. In 1899 Rudolph Bandel, on the incentive of Prof. R. Fleischer, of Erlangen, investigated the writings of Hippocrates for his knowledge on dietetics. It is published in a small pamphlet entitled *"Ansichten u. Ausprüche des Hippokrates über die Ernährung vom Gesunden und Kranden, etc."* (Inaugural dissertation, Erlangen.) In this publication we find nothing to confirm the supposition that the diet of Hippocrates gave evidence of his knowledge of gastric ulcer. The term which Hippocrates gives to the vomited masses in *morbus niger* is *atra bilis* (black bile), which expression maintained itself in medical literature until 1740, when F. R. Hoffmann demonstrated that the seat of *morbus niger* is the stomach. His words are as follows: "Simultaneously with the destruction of the substance of the stomach, the vessels are corroded or broken open, and these open vessels furnish the blood which is expelled by vomiting. We have to assume that the vessels are corroded by sour and acid juices, when a sharp gastric pain precedes the vomiting, and when the vomited bloody masses are black and acid at the same time, make the teeth stand on edge, and irritate the mouth and gullet."

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[7] Oesterich Med. Jahrb., 1839, vol. xviii (abstract in Schmidt's Jahrb., vol. xxv, p. 40).

[8] Canstatt's Jahresberichte.

[9] Jaksch: Prager Vierteljahrschr., vol. iii, 1844; Virchow: Arch. f. path. Anat., vol. v, p. 362, 1853; and A. Beer: "Aus dem. path. anatom., Curse des Prof. R. Virchow in Berlin, Das einfache duodenische (corrosive) Magensgeschwür," Wiener med. Woch., Nos. 26, 27, 1857; Brinton: On the Pathology, Symptoms and Treatment of Ulcer of the Stomach, London, 1857; V. Ziemssen: Volkmann's Samml. klin. Vorträge, No. 15, 1871; Leube: Ziemssen's Handb. d. spec. Path. u. Therap., vol. vii, Leipzig, 1878.

[10] Das corrosive Geschwür im Magen und Darmkanal, Erlangen, 1860.

[11] Erkrankungen des Magens. In the fourth volume of Penzoldt u. Stintzing's Handbuch d. specielle Therapie, p. 316, also pp. 437 and 438 are contained 150 bibliographical and historical references on gastric ulcer.

[12] American System of Medicine (edited by Pepper), vol. ii, p. 480.

[13] Vol. ii.

Morgagni (1682-1771), a contemporary of the promi- 'alian anatomists, a pupil of Valsalvas and Alber- l a friend of Lancissi, in his book on "The Seat e Causation of Diseases," does not agree with view of F. R. Hoffmann just expressed, but holds that patients who die of *morbus niger* were suffering from a kind of gangrene of the stomach; that they did not die of loss of blood, but of a kind of poisoning of the blood, which infected the brain. It is interesting to note here that Morgagni described in this work the condition known as "continuous gastric secretion" (gastric succorrhea) occurring in a German nobleman in Bologna, who died later with symptoms of gastric tetany.

The designation *ulcus ventriculi* was first used by the versatile Jena clinician, Johann Peter Frank (1745 to 1821.) It is regrettable that the writings of this scholarly asclepiad are being gradually forgotten, for the modern treatment of gastric ulcer dates from him. The insistance on absolute rest in bed, the application of snow or crushed ice to the stomach, the great regard for dieting (milk and bouillon in small portions), all show exceptional clinical experience. The best that is known on gastric ulcer and gastric diseases in general up to 1850 is presented in the work of William Brinton. Since the descriptions of Cruveilhier, Rokitansky and Virchow, the pathologic conception and the clinical conception of the gastric ulcer have received no notable advance. The further students of this disease, Trousseau, Kussmaul, Ziemssen, Leube, C. A. Ewald, von Mering, Fleiner, Boas, Rosenheim, Riegel, Penzoldt, furnished clinical elaborations, purely.

It might be mentioned before concluding, that the first surgical intervention for gastric ulcer was undertaken in 1881 by Rydygier. For further history of gastric surgery, see Hemmeter.[15]

Original Articles.

BLINDNESS AND OCULOMOTOR PALSIES FROM INJURIES NOT INVOLVING THE OPTIC OR OCULOMOTOR NERVES.*

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That the eye in its visual function and motility is disturbed by causes remote from it, has been known for centuries, and is also a matter of common observation to-day. Among these disturbing causes have been found certain injuries about the face and forehead, which have led to partial or complete loss of vision, usually of one eye, and paralysis, partial or complete, of some of the ocular nerves, these injuries not seeming to involve the particular nerves whose function was impaired or lost. In a large proportion of these cases the injuries have apparently been limited to the fifth nerve, or some of its branches. Hippocrates had noticed this, and it is recorded that he said "the sight is obscured in wounds which are inflicted on the eyebrow or a little higher."[1]

Blindness and ocular palsies following violent injuries of the face and head, and direct injuries of the optic and oculomotor nerves, have recently received careful study and consideration. Berlin[2] read a paper at the Heidelberg Congress, in 1879, in which he reported the statistics of Dr. von Hölder, comprising 124 cases of fracture of the cranium in which postmortems had been made, and in which the fracture, in 79, passed through the orbital vault; and of these 79, 63 involved the walls of the optic canal. He believes that such fractures and direct injuries to the nerves are essential factors in producing the blindness and paralysis often found after head injuries.

Among those who particularly adhere to the same theory are Nettleship,[3] who has studied a large number of gunshot injuries of and about the orbit; Callan,[4] who reported in 1893, 9 cases of orbital traumatism, and who, in a private letter to me a short time ago, said that up to the present time "it has been my fortune to see at least 25 cases of the same type"; Simeon Snell,[5] who has analyzed 18 cases of blindness following injury "chiefly of the anterior part of the head"; Purtscher,[6] who has collected 46 cases of traumatic paralysis of the abducens nerve; and Friedenwald,[7] who continued Purtscher's series by the addition of 11 more belonging to the same class.

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[14] Sydenham Society edition.

[15] Diseases of the Stomach, third edition, p. 348. For history and literature of gastric ulcer, see same work, pp. 486-526, containing 248 literary references on the subject.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Hocken: *A Treatise on Amaurosis, Philadelphia,* 1842, p. 155.

[2] Berlin: Graefe-Saemisch Handbuch der Gesamten Augenheilkunde, first edition, vol. vi, p. 604.

[3] Nettleship: Transactions of the Ophthalmological Society of the United Kingdom, 1901, vol. xxi, p. 120.

[4] Callan: New York Eye and Ear Infirmary Reports, vol. i, Part 1, January, 1893.

[5] Snell: Transactions of the Ophthalmological Society of the United Kingdom, 1897, vol. xvii, p. 81.

I quite agree with the conclusions of these gentlemen that, in most of the cases which they have cited, the blindness or paralysis was due to injury, either direct or indirect, of the affected nerves. It is this class of cases that I would eliminate entirely from this discussion. I wish to reserve only those in which there has been no violent face or head injury, and, so far as can be seen or determined, no direct nor indirect involvement of the disabled nerve itself.

The question naturally arises, Do any such cases exist? To this question both affirmative and negative answers have been given. The negative answers I shall not analyze. On the affirmative side there have been many keen observers, both before the time of the use of the ophthalmoscope and since. The cases cited to sustain the affirmation during the pre-ophthalmoscopic period are by no means valueless, for the ophthalmoscope is not indispensable, always, to determine where an injury has been inflicted or whether an eye has been actually blinded or palsied. We might begin the citation of authorities with Hippocrates and continue it to the present time, and we should find that they include the most learned men and most discriminating observers of the medical world. Let me name a few of those of the past century who have recorded themselves on the affirmative side of this question: Beer,[8] Guthrie,[9] Wardrop,[10] Middlemore,[11] Hocken,[1] Chelius,[12] Lawrence,[13] Hutchinson,[14] de Wecker,[15] Badal,[16] Redard,[17] Norris,[18] Nuel,[19] Noyes,[20] Panas,[21] Chauvel,[22] Spaulding.[23] The list might be greatly extended, but this is sufficient to show the credibility and number of the witnesses. Many individual cases have otherwise been reported, which are said to be due to fracture involving the walls of the optic canal or orbit, but in which there is a possible doubt. For example, Snell,[5] in his report above referred to, included 2 cases, Nos. 2 and 3, of this class; Posey[24] also reported a case of the same kind to the College of Physicians of Philadelphia in 1899; and others have reported similar cases.

I can not reproduce the long list of individual cases which are scattered through medical and ophthalmologic literature, but must refer those interested to the various authorities who have recorded them, some of which I have already named. It seems to me that there is room, in those cases that I have studied, to doubt that there was fracture at the optic foramen or of the orbital walls, or injuries of the disabled nerves, either by laceration, contusion, concussion or extravasation of blood. In most of them the injury has been found to exist in some branch of the fifth or trifacial nerve alone, either the infraorbital, nasal, frontal or supraorbital, and not in the least to involve the optic or motoroculi nerves. That the results described might be indirect seems possible, when it is recalled that there are so many well-authenticated cases recorded, in which paralysis of the intraocular or extraocular muscles and blindness more or less complete have supervened on some disease (not injury) of the trifacial, and particularly of the branches distributed to the teeth. Furthermore, it should be remembered that this great nerve, with its extended distribution, has numerous and important relations, and it is not strange that authors should have concluded that disturbances originating in it may so react on the vasomotor nerves and nerve centers as to interfere with the nutrition of the eye, to check its movements, and even to suspend, partially or completely, temporarily or permanently, so delicate a function as vision.

This reaction has been acknowledged and studied by Brown-Séquard,[25] by Jonathan Hutchinson,[14] by Rondeau,[26] by Hughlings Jackson and by others, and they have designated it as "reflex." Furthermore, it has been claimed that these eye reflexes may originate elsewhere than in the branches of the fifth nerve, and particularly in the genital organs and the intestinal tract. Jonathan Hutchinson[14] says that these reflexes are probably due in many cases "to an influence exerted through the vasomotor nerves only, by which are induced alterations of blood supply to the affected part. It is probable, however, that nutritive alterations may be induced through the nervous system independently of any primary change in the caliber of the blood vessels."

When I recall the anatomy of the bony structures immediately surrounding the optic nerve, and the difficulty of fracturing the canal through which this nerve enters the orbit, and when I stop to think that it is most difficult to implicate any of the other orbital nerves in a fracture that would involve either the sphenoidal fissure or the orbital walls, I am led to question the sufficiency of the fracture theory in the class of cases which I am discussing, and am inclined to accept, at present, for want of a more satisfactory explanation, the reflex theory.

I shall now detail from my own experience a few cases which have appeared to me not to be easily accounted for on the fracture or injury theory.

CASE 1.—Paralysis of the right superior levator palpebræ, and partial paralysis of the right superior rectus muscles following a punctured wound on the right side of the nose, at the inner angle of the eye; recovery.

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[6] Purtscher: Archives of Ophthalmology, 1894, vol. xxiii, p. 361.

[7] Friedenwald: Archives of Ophthalmology, 1894, vol. xxiii, p. 403.

[8] Beer: Lehre von den Augenkrankheiten, Wein, 1813, vol. i, pp. 176, 185, 189.

[9] Guthrie: Lectures on the Operative Surgery of the Eye, London, 1823, p. 100.

[10] Wardrop: The Morbid Anatomy of the Human Eye, London, 1834, vol. ii, p. 194.

[11] Middlemore: Treatise on the Diseases of the Eye, London, 1835, vol. ii, p. 364.

[12] Chelius: System of Surgery, translated by South, London, 1847, vol. i, p. 430.

[13] Lawrence: A Treatise on the Diseases of the Eye, American edition, Philadelphia, 1854, p. 125.

[14] Hutchinson: Royal London Ophthalmic Hospital Reports, 1863, vol. iv, Part I, p. 120.

[15] deWecker: Annales d'Oculistique, 1866, vol. iv, p. 130; and Traité Théorique et Pratique des Maladies des Yeux, Paris, 1868, vol. ii, p. 437.

[16] Badal: Société de Biologie de Bordeaux, January, 1877, quoted by Yvert in Traité Pratique et Clinique des Blessures du Globe de l'Oeil, Paris, 1880, p. 544.

[17] Redard: Bulletins et Mémoires de la Société Française d'Ophthalmologie, 1886, vol. iv, p. 263.

[18] Norris: Medical Ophthalmology in vol. iv, Pepper's System of Medicine, Philadelphia, 1886, p. 788.

[19] Nuel: deWecker and Landolt, Traité Complet d'Ophthalmologie, Paris, 1887, vol. iii, p. 698.

[20] Noyes: A Text-book on Diseases of the Eye, second edition, New York, 1894, p. 696.

[21] Panas: Traité des Maladies des Yeux, Paris, 1894, vol. ii, p. 735, and in other of his writings.

[22] Chauvel: Etudes Ophthalmologiques, Paris, 1896, p. 290.

[23] Spaulding: Transactions of the American Ophthalmological Society, 1900, vol. ix, p. 83.

[24] Posey: Ophthalmic Record, 1899, vol. viii, p. 314.

[25] Brown-Séquard: London Lancet, 1861, vol. ii, p. 30.

[26] Rondeau: Des Affections Oculaires Reflexes, Paris, 1866, pp. 53 and 54.

tient.—J. V. B., male, aged 24, laborer, consulted me on 1, 1903, for inability to raise the right upper lid.

story.—Ten days previously when fishing, a comrade threw hpole toward him, and the small end struck him on the side of the nose in the region of the lachrymal sac, pro- g a puncture of the skin. He was very sure that the pole ot pierce the orbit. Neither the upper eyelid nor the eye- was injured at any point. The eye was dressed and ban- ed over night, and the next morning, on removing the ings he found that he could not raise the upper eyelid.

amination.—At the time of this consultation there was lete ptosis of this eyelid. On raising it with my finger, id there was slight diplopia on turning the eyes upward o the left, but in the primary position he saw singly. In- ion seemed to indicate unrestricted and normal rotation e eye in all directions except upward. The pupil was al in size, and responded normally to light. Vision was al. Iodid of potassium was given internally.

gust 29. The ptosis had nearly disappeared, but he con- d to see double on turning the eyes upward.

tember 12. The function of the levator palpebræ and su- r rectus muscles was fully restored, and the ptosis had en- disappeared.

SE 2.—Paralysis of the left third cranial nerve following from a bicycle.

tient.—P. M., male, aged 23. Referred to me by Dr. le, Nov. 3, 1898.

tory.—On August 27, preceding, he fell from his bicycle truck his head on the pavement. There was no external d nor injury of the eyeball but he was unconscious for l hours. On recovering consciousness there was found total paralysis of the left third cranial nerve, with the ding symptoms of ptosis, divergent strabismus, dilated , etc. For some time afterward there was confusion of ntellect and impairment of memory.

atment.—At the date of consultation the paralysis was improved, and the vision of each eye was five-fifths, ugh both optic discs seemed rather pale. I suggested the al use of iodid of potassium, and the local application ctricity. I have never seen the patient since.

SE 3.—Paralysis of the external rectus muscle of the right llowing a blow over the eye; persisted at the end of four .

ient.—I. B., male, aged 13. Referred to me by Drs. W. reene and E. Clark, Feb. 21, 1898.

tory.—Four years previously he was struck over the eye with a small tin can attached to a string, which ier boy was playing with and swinging. The eyeball was njured. Immediately afterward the right eye began to rge, and has remained convergent up to the present time. as unable to turn the eye outward beyond the median .

amination.—Vision equaled fingers at one to two feet. reacted well to light and was of normal size. Nothing mal could be found in the fundus, even after dilating upil with homatropin. The vision of the left eye equaled fths. No treatment was advised, and the patient was een again.

SE 4.—Paralysis of the right external rectus muscle fol- g a fall and striking on the back of the head; recovery.

ient.—R. M., male, aged 15. Referred to me by Dr. A. lton, July 23, 1903.

story.—About three weeks previously was run down by a le, and in falling struck, as he says, the back of his head. as unconscious for a short time, and afterwards had se- headache. He at once began to see double, and the right as found to be convergent.

amination.—At the time of consultation there was al- complete paralysis of the external rectus muscle of the eye. The vision was normal in each eye, and so was each s. The eyeball had not been injured, and there was no nce of intracranial hemorrhage.

tment.—I advised iodid of potassium to be given internally, and the covering of one eye until the paralysis disappeared.

August 27. Paralysis was much improved. Advised the continuance of the same treatment.

Later, I was informed that the case had entirely recovered.

CASE 5.—Paralysis of the external rectus muscle of the right eye following a slight bruise over the eye; recovery.

Patient.—H. B., male, aged 50, railroad employe, consulted me on March 27, 1897.

History.—He fell out of the door of a baggage car a few days previously, and struck his head against an object, leaving a slight bruise over the right eye near the hair of the scalp. There was no loss of consciousness and no dizziness. Immediately after the injury he began to see double.

Examination.—On examination I found that the right external rectus muscle was partially paralyzed, leaving a pronounced convergent strabismus. Fundi of both eyes were normal.

Treatment.—After correcting a slight hypermetropia the vision of each eye equaled five-fifths. Strychnia was given internally, and the paralysis disappeared after a few weeks.

CASE 6.—Paralysis of the external rectus muscle of the right eye, following an operation in the nose; recovery.

Patient.—E. H., woman, aged 23. On Jan. 24, 1898, I was called in consultation to see the patient by Dr. Horace Clark, and obtained the following history:

History.—On January 17, the physician removed the right middle turbinated bone, and then proceeding some distance backward and upward, undertook to remove further bony obstruction with a gouge by making light taps on it with a mallet. This did not seem sufficient, so he gave it a harder tap, when she at once complained of severe pain on the right side of the head and forehead, which continued for about an hour. Immediately after the onset of the pain she began to see double, and the physician noted that the right eye was convergent from paralysis of the external rectus muscle. Two days afterward a distinct ecchymosis was observed in the right lower lid, and there was also a slight ecchymosis of the conjunctiva of the eyeball on the lower and outer side. It was not possible, the physician said, for the chisel to have pierced the floor or apex of the orbit at any point. Dr. Lucien Howe had also seen the case.

Examination.—Examination showed that the vision of the eye seemed to be normal, although test letters were not used. There was still some ecchymosis of the lid and conjunctiva, but otherwise the structural appearances of the eye were normal. The ophthalmoscope showed an unusual redness of the optic disc, which perhaps was normal, as the same appearance was present in the other eye. I expressed the opinion that the case was one of reflex paralysis of the external rectus muscle, and gave a favorable prognosis.

February 2.—On examination at my office, the paralysis was somewhat improved. There was refractive error in each eye, and without correction vision equaled five-sixths each. With correction it was five-fifths each. With the ophthalmoscope there was seen the same unusual redness of both optic discs. Ordered the correcting glasses.

April 9.—The right external rectus muscle had entirely recovered its normal strength, and the convergence had disappeared.

CASE 7.—Blindness following cut over the left eye, extending through the eyebrow and into the base of the orbit.

Patient.—C. C. H., male, aged 23, musician, consulted me on Nov. 17, 1896.

History.—Three days before, when in a house of ill-fame, he was attacked by one of the girls and struck with a case-knife, inflicting a wound over the left eye which extended through the eyebrow from above, downward and outward into the orbit. He was taken to the Emergency Hospital on Michigan street, and attended by Dr. Francis J. Carr, who closed the wound with sutures and on the third day sent him to me.

Examination.—I found some swelling of the eyelid and of the orbital tissues. The pupil was dilated, and vision in this eye was totally lost, even to the strongest light. There was no injury of the eyeball. The ophthalmoscope showed that the refractive media were clear, and the fundus normal.

Treatment and Result.—The case was treated with cold applications over the parts, and medium-sized doses of iodid of potassium were given internally.

On December 1, the swelling had entirely disappeared, there was some conjunctival and lid ecchymosis, and the movements of the eye were normal, except in the outward direction. There was no vision, and the ophthalmoscopic appearances were the same as before.

On December 21 the movements of the eye were normal except outward, and this was improved. Pupil was a little dilated when the right eye was covered, but responded consensually to light acting on the other eye. The ophthalmoscope showed that the optic disc was becoming a little pale. The potassium, internally, was continued.

February 1. The optic disc had continued to grow pale and the retinal vessels were smaller than normal. The external rectus muscle was still semi-paralyzed, but the patient was able to turn the eye outward considerably beyond the median plane. Vision remained *nil.*

The vision of the other eye was normal.

CASE 8.—Blindness of right eye following a fall.

Patient.—F. M., male, aged 11.

History.—On Nov. 1, 1901, he was riding on horseback, when the horse stumbled and he was thrown to the ground, striking his head on the right side and cutting the skin over the right eyebrow. There was no bleeding from the nose or ears. He was dazed for ten or fifteen minutes, after which he was taken to Dr. G. H. Grant, who dressed the wound and applied a bandage so as to cover both the wound and that eye. The dressing was kept on for a week or ten days. On removing it he found that he could barely distinguish light from darkness with that eye. He had severe headaches for several days after the injury.

Examination.—On November 26, Dr. Grant brought him to me, when the examination showed that the pupil did not respond to light, except in harmony with the light reflex of the other eye. With the ophthalmoscope the optic disc of that eye had a slightly waxy white color, but the retinal vessels were normal in size, and there were no lesions elsewhere in the fundus. The vision was totally lost, even to the strongest light. The vision of the left eye was five-fifths. Potassium iodid was ordered to be given internally, but the prognosis as to vision was unfavorable.

Result.—The optic disc of the right eye gradually passed into complete atrophy, and at the present time the eye is totally blind.

CASE 9.—Injury above and below the left eye followed by blindness after three or four days.

Patient.—L. B., male, aged 21.

History.—On May 26, 1900, while riding on his bicycle, he collided with another bicyclist and fell and struck his head in such a manner as to bruise his nose and face and to produce a cut through the outer part of the left eyebrow. He was unconscious for about an hour, and delirious for about two hours more. He had profuse nose bleed after the fall. Much swelling over and around the eye followed, and for several days it was with much difficulty that the lids could be opened. He thought that on the day following the injury he could see a little, but in three or four days the vision was entirely lost. He also said that there was a sense of numbness in the left side of his face and upper jaw, including the teeth on that side. He was treated by Dr. Borden in consultation with Dr. Lake of Gowanda, N. Y., who referred him to me.

Examination.—On June 11, when I saw the case, I found the wound of the eyebrow healed. There was no swelling of the tissues of the orbit, but there was a small conjunctival chemosis on the outer side of the eye. The movements of the eyeball were normal and unrestricted in all directions. The pupil reacted consentaneously with the other, but did not respond to light when it alone was exposed, and was dilated when the right eye was covered. There was entire absence of perception of the strongest light. The ophthalmoscope showed nothing abnormal, except, perhaps, that the retinal veins were a little distended. The numbness in the left side of face and jaw was still perceptible.

Treatment.—Prognosis, so far as vision was concerned, was pronounced unfavorable. Advised the continued use of iodid of potassium and strychnia internally.

July 3. No vision of the left eye, and optic disc of that eye was pale and waxy in appearance. Continued treatment as before for a few weeks.

April 29, 1903. Optic disc of left eye had become atrophic and blindness continued. The vision of the other eye was normal.

CASE 10.—Immediate blindness of left eye following an injury at the base of the orbit, at the lower and inner portion.

Patient.—T. K., male, aged 36, occupation, foreman in a metallic bedstead manufactory; was brought to me by Dr. Charles P. Chapin of Buffalo on Aug. 30, 1903.

History.—The right eye had been blind for three years with cataract, caused by being struck with a piece of iron. Two days previously (August 28), while working in the manufactory, he bent over to reach for something and struck a projecting wire, the end piercing the lower lid of the left eye sidewise from without, inward, and slightly, but not directly, backward. The skin was torn for perhaps a third of an inch at a point just above the lower margin of the orbit, and a little beyond the center of the lid toward the nose. Patient insisted that the wire did not penetrate more than one-half inch, if it did to that extent, even. Immediately after the injury he found himself totally blind in the left eye, and, having been blind from cataract in the other eye before this, the outside world was now entirely closed to him so far as his vision was concerned. There was not the slightest disturbance of consciousness or equilibrium. He was taken to a physician nearby who closed the external wound with a suture, and declared to him that the eyeball was not injured, and that he thought that the vision would return after a few days.

Examination.—When first examined by me, August 30, there was no swelling of the lids, no effusion nor swelling of the cellular tissue of the orbit at any point. There was, however, some ecchymosis of the lower lid, and a very small ecchymosis of the conjunctiva of the lower part of the eyeball. I examined very carefully for evidence of a wound of the eyeball, but I did not find the slightest. Neither was there any evidence of deep penetration of the orbit. Patient said that the hemorrhage from the wound was very slight, and that there was no bleeding from the nose. There had been no pain since the injury was inflicted. Further examination of the eye showed that the pupil was dilated when the other eye was covered, and that it did not respond to light. It did, however, contract consensually on exposure of the right eye to light. The refractive media were absolutely clear, and the fundus was distinctly seen. Not the slightest change in the eyeground could be found, unless it was that the retinal veins were a little more distended than normally, alhough this, even, was questionable. There was not the faintest perception of the strongest light. I predicted permanent blindness of this eye with subsequent atrophy of the optic nerve.

Treatment.—I at once took steps to restore the vision of the right eye which had been injured three years ago by being struck with a chip of steel. Examination of it revealed the presence of a small piece of iron lodged in the iris on the nasal side about half way between the pupillary and peripheral margins. The lens was fully opaque and the iris was adherent to it at the point of injury. Pupil responded fairly well to light, and vision equaled good perception of light throughout the visual field. The presence of the steel was shown both by inspection and by its being attracted by the electro-magnet. On September 1, I made an incision through the cornea at the inner margin and loosened the steel with a Sweet electro-magnet, and withdrew it from the anterior chamber with a small iris forceps. The eye recovered rapidly from the operation, and on September 15 I extracted the cataract without iridectomy. The recovery from this operation was also rapid, but the capsule was left in a thickened and opaque condition. On October 12, I lit the capsule with two needles, leaving a good central pening. On October 26, with + 14.00 D.S., vision equaled ve-sixths and with + 3.00 D.S. added, vision equaled Jaeger o. 1 at fourteen inches. Glasses were ordered accordingly, nd he resumed his occupation.

At the present time the vision of the left eye remains to-lly lost, and the optic nerve has become quite atrophic. ith the right eye he sees as before.

Of these 10 cases, 6 are paralysis of the extraocular uscles, without any evidence of the muscles themselves r their nerve supply being directly injured, either by contusion, compression or hemorrhage, and 4 are ses of unilateral blindness which vary somewhat in e nature of the injury. In Cases 7 and 10 it seems npossible to account for the blindness, on the assumption that the optic nerve was injured directly, or by ompression through fracture of the optic foramen. n the one it does not seem to me that the knife could ave penetrated to the apex of the orbit, and cut or ruised the optic nerve without seriously injuring, also, ther important orbital structures, or that the sphenoid one could have been fractured at the optic foramen rough impact on the vault of the orbit. In the other se we have the positive statement of the patient that wire did not penetrate deeply into the orbit, and e symptoms following the injury, so far as the orbital tructures are concerned, are opposed to such a supposition. In the other 2 cases the injuries were more violent, and while I can not see how they could cause a racture at the optic foramen, yet I am not prepared say that such an occurrence was not possible. My resent opinion, however, is that none of these ten cases clearly explainable on the fracture or direct injury eory. Are they not all reflex?

DISCUSSION.

Dr. S. D. Risley, Philadephia, said that he is not quite willing to accept the theory of reflex origin of the blindness in the ses mentioned. He has never been able to grasp a satisfying comprehension of the reflex origin of a disease; particurly of one so serious as to cause blindness, though there are rtain clinical facts which seem to bear out this theory. The te Dr. Flagg *several years ago published in the Dental Cosos* a report of a case of total blindness which was brought him for inspection of the teeth. Dr. Flagg found that placıg a piece of ice on a certain tooth demonstrated excessive nsibility to cold in that tooth. Extraction of the tooth was llowed by almost immediate restoration in sight. The upils, which had been widely dilated, contracted and vision turned to normal. A curious deposit was found in the pulp vity of the tooth. Pressure on the dental branch of the rve seemed to have this marked effect on vision. *Dr. Risley* entioned the case of a man who had a high degree of mixed stigmatism and who had worn glasses for several years with uch comfort, but finally came back with a great deal of discomfort. On investigating the mouth Dr. Risley found that e premolar was double and that the first tooth had not been rown off. After extraction of the deciduous teeth there was omplete relief from headache and from impaired vision. Dr. isley has seen eight cases, six of which were totally blind in e eye involved, one partially blind in both eyes and in the ther paralysis of the third pair of nerves, the man having een injured by being thrown from his buggy by a train. In is case the eyelid was paralyzed afterward and with no inry to the nerve. A *carter was thrown from his cart*, striking on the left superior orbital rim and went blind in six eeks from atrophy of the optic nerve on the side of the inry. A small child fell and struck the *inferior orbital* rim gainst the end of a stick she was carrying in her hand, aparently not causing any very serious injury. A few days ter she complained of impaired sight and went blind with atrophy of the optic nerve. Another case, a man, was struck on the top of the head *anteriorly with a piece of scantling* and in a few days noticed impairment of sight and recovered finally with only 1/10 vision. These were very interesting cases to Dr. Risley, but so far from regarding the blindness of reflex origin he has been inclined to think that the optic nerve itself had been injured, the force of the blow being conducted along the walls of the orbit and pressing the nerve, whether there had been a fracture of the foramen or not; or in the case of paralysis of the oculomotor that the nerve had been *injured in the sphenoidal fissure*. While on a visit in the west Dr. Risley saw a case of a farmer who was thrown from his horse-rake, sustaining a fracture of the temporal wall of the left orbit. There was profuse intraocular hemorrhage and total blindness ensued with optic atrophy in the injured eye.

Dr. G. E. de Schweinitz, Philadelphia, regretted that Dr. Hubbell should lend the weight of his authority to a theory which rests on so slight a foundation as that of reflex blindness. Dr. de Schweinitz said that while it is not always possible to state with accuracy the underlying pathologic conditions which cause loss of sight under the circumstances which Dr. Hubbell has detailed, and while there is often no clinical evidence, *at first, at least, of injury to the optic nerve*, it seems to him that most of these cases can be explained without an appeal to a reflex theory. Certainly some are due to hemorrhage *in the sheath of the optic nerve*, and recent investigations have shown that after comparatively slight blows on the head there may be fracture of the base of the skull, or a fissure running into the optic canal, which of itself would cause to be thrown out much inflammatory *material* and so make pressure on the nerve, or be the cause of a hemorrhage *into the optic nerve sheath*. Dr. de Schweinitz considers that some of these cases may be due to an *infection*, perhaps, of the optic nerve sheath, precisely as an infection may be caused in the pleura by the removal of a stitch, or from a wound on or above the brow. Finally, if there should be a sustained vasomotor alteration affecting the retinal circulation, such as probably takes place with certain toxic agents in the system, the *ganglion* cells of the retina are starved and degenerate and cause an ascending atrophy of the optic nerve.

Dr. Alvin A. Hubbell said that he does not think that Dr. de Schweinitz has explained away the reflex theory. He should be glad to accept the fracture or injury theory, if it *seemed sufficient*, but in many cases it does not. Moreover, the reflex theory appeals to him, as there are cases of blindness and oculomotor paralysis in which there has been no injury of any kind, and which were the result, apparently, of disease remote from the eye itself. Many such can be gathered from both American and European authorities. Dr. Hubbell confessed that the reflex theory has its difficulties, and he desires further enlightenment. *After eliminating cases of* undoubted traumatic involvement of the ocular nerves whose *function is impaired or lost, there seems to remain a residuum* of cases in which the injury *does not reach to or implicate* them, and that belong to that class heretofore known as reflex.

CONTRACTION OF THE VISUAL FIELD;

A SYMPTOM OF ANESTHESIA OF THE RETINA IN CHILDREN.*

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The term retinal anesthesia is usually employed to designate a rather vague condition in which the function of the retina is temporarily suspended or its sensibility greatly diminished. In many text-books it is included in retinal diseases only for consistency's sake and to describe a possibility of the occurrence of such a condition. But from the descriptions usually given it would seem that authors had never encountered the affection as a purely independent disease having definite symptoms, treatment and prognosis. It is my purpose in this paper to present the features of this condition as I have met with it and to substantiate my statements with brief histories of my cases. This retinal anesthesia, in my experience, is characterized by a reduction in the acuity of vision and marked contraction of the visual fields, with no reversal in the color fields. There are no other symptoms, and the eyeground is normal in every respect. The affection is by no means infrequent and is usually observed in children from six to fourteen years of age of both sexes, being most common in children of the better class of people. The acuity of vision is rather suddenly diminished, and this diminution is first manifested by the child becoming awkward and by stumbling over objects not in the direct line of vision. An inability to read except in very strong light makes its appearance in a very short time, and soon distant vision also becomes reduced. At this stage of the affection the ophthalmologist is usually consulted and a careful examination of the visual field will reveal marked contraction, varying from 30 to 55 degrees in both the vertical and horizontal meridians, and a reduction of vision to one-fifth normal or less. The color fields are contracted proportionately and maintain their relation to each other. Visual scotomata are absent. The ophthalmoscopic examination reveals nothing abnormal. The pupils are semi-dilated and somewhat inactive. The patients are usually in good health and complain of no symptoms other than the great loss of vision.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The treatment which I employ in these cases is the daily application of a weak constant electric current, one or two milliamperes "voltaic alternatives." The negative pole should be placed over the eyeball and the positive pole over the opposite temple or nape of the neck. The sitting should be of about ten minutes' duration. The fields should be taken daily during the treatment and marked improvement will be observed within a few days. Recovery is prompt. As in other ocular conditions, the state of the refraction should be ascertained, but any error present should not be corrected until after a thorough course of electric treatment. The refraction should not be considered as an essential portion of the treatment for reasons I shall give later. The total number of cases under observation have been twenty-four.

CASE 1.—A. B., girl, aged 9 years, was brought to me in December, 1887, with a history of general awkwardness and diminution of vision, which in examination by test letters was found to be R. E. 20/70, L. E. 20/50 (one letter). The visual field was shown by the perimeter to be markedly contracted. The eyeground was normal with the possible exception that the veins were dilated and tortuous. The refraction was examined and Sph. plus 0.25 was found for each eye; glasses were not prescribed. The patient was referred to Dr. G. G. Faught for electrical treatment as described, and after five applications the visual fields and vision were restored to normal. The patient was then discharged. She was again seen by me in November, 1894, but had had no recurrence up to that date.

CASE 2.—F. H., boy, aged 10 years, consulted me in February, 1894, with a similar history, and the additional symptom of headache. Examination of the visual fields also showed marked contraction to 10 degrees in all meridians. Hyperopic astigmatism was detected at this time (Cyl. plus 0.50, ax. 90), confirmed by retinoscopy and trial lenses. The electrical treatment was employed four times, and nine days after the first visit to me the fields were found normal. The astigmatic correction was refused at this time. When seen in April, 1904, he stated that he had had no recurrence. Examination of the fundus showed the optic nerve to be red and excessive pigment in the choroidal coat. The ametropia under atropin, and confirmed by retinoscopy at this time, was R. E. Sph. —3.00, L. E. Sph. —1.00, which were prescribed, a change from hyperopic astigmatism cyl. plus 0.50 ax. 90 in both eyes to present condition of myopia which had developed during the past ten years.

CASE 3.—H. P., a boy, aged 10 years, came under my observation August, 1895, with visual disturbances and slight headache. The fields were found contracted irregularly to 10 to 20 degrees. Mixed astigmatism was detected and corrected. Sph. plus 0.25, cyl. —0.50, ax. 180; L. E., Sph. plus 0.37, cyl. —0.50, ax. 180. After several applications the field became normal in extent and the patient was discharged. In February, 1897, the patient again consulted me, and a slight contraction of the lower field was detected. No change required in the glasses. In January, 1904, I again saw the patient, at which date the fields were normal, and no change required in the glasses.

CASE 4.—C. N., female, aged 12 years, was seen by me in January, 1896, with the complaint of failing vision, which by means of test letters was shown to be 20/100 in both eyes. The correcting lenses (B. E. Sph. plus 0.50) served to increase the vision to 20/50. The fields were found to be contracted to 10 degrees in all meridians, but were restored promptly to normal after eight electrical treatments, combined with rest. Vision, both eyes, 20/20. In April, 1899, there was a slight recurrence, possibly owing to her greatly weakened condition. The patient died of pernicious anemia in November, 1896.

CASE 5.—H. C., girl, aged 10 years, came under my professional care in October, 1897, with vision R. E. 5/100, L. E. 20/200, and fields contracted to 20 degrees in the principal meridians. There was a history of a blow on the head. As there was no change in the color of the optic nerves, I did not think that the blow caused any change in the vision or fields. The electrical treatment was instituted, and within four weeks the left field was normal, but the right was still contracted. Three months later, however, the right field was normal. Myopia (Sph. —1.00) was present. In March, 1904, a recurrence occurred, due, in all probability, to excessive study. The refraction was examined and high myopic astigmatism detected and corrected (R. E., Sph. —4.25, cyl. —0.50, ax. 5; L. E., Sph. —4.50, cyl. —1.25, ax. 180).

CASE 6.—H. S., a girl, aged 11 years, was brought to me Feb. 25, 1899, with failing vision (20/200), both eyes, and contracted fields to 15 degrees without obvious cause. Lenses cyl. —0.50, ax. 180, both eyes, failed to improve vision more than 20/70. After five electrical treatments the fields became normal, and concave (cyl. —0.50, axis 180) cylindrical lenses were accepted, with vision restored to 20/20. No recurrence.

CASE 7.—J. G., a boy, aged 10 years, consulted me in November, 1899, with failing vision, 20/200, which lenses failed to improve. There were no structural changes to account for this loss of visual acuity. The perimeter demonstrated contraction of the fields to 30 degrees. After eight electric treatments the fields became normal and visual acuity increased to 20/20. There was no recurrence to my knowledge.

CASE 8.—J. J. D., boy, aged 9 years, complained of failing vision Feb. 21, 1899. The fields were found contracted to 30 degress, vision 20/100, and the optic nerves pale. Glasses afforded no improvement. The electrical treatment was employed twice, when the visual fields and vision were found to be normal.

CASE 9.—B. H., girl, aged 11 years, was brought to me Oct. 12, 1900, because of loss of vision. Examination by means of test letters showed the vision to be 20/70 in the right eye and 20/100 in the left eye. The fields were contracted to 10 degrees in the vertical and 20 degrees in the horizontal meridian. There was a very small degree of simple hyperopia. Seven electric applications restored the fields to normal, and vision 20/20.

CASE 10.—S. P., a boy, aged 8 years, complained of failing vision Oct. 21, 1898. No other subjective symptoms were present. The fields were found contracted to 20 degrees in both meridians and vision 20/100. Slight error of refraction was detected, but lenses afforded no improvement. Restoration of fields and vision occurred after nine electric applications.

Case 15.—Indian girl, aged 12 years, complained of failing sion, November, 1902. R. E. 20/100, L. E. 20/40. A slight ror of refraction (Sph. plus 0.25) was present, but glasses ere not worn. Fields contracted to, R. E. 30 degrees, L. E. 40 grees, in both meridians. Improvement followed seven applitions of electricity. She had all the characteristics of her ce, being a pure-blooded Sioux, strong and robust.

This is the only case among the red race I have ever und, having examined thirty-five hundred children.

The other thirteen cases were similar in character— e same contracted fields, with loss of vision; good relts obtained by the use of electricity. Two cases are der treatment at the present time.

In presenting these cases, the points to which I wish lay great emphasis are the occurrence of contracted sual fields in children between the ages of 8 and 16 ars having unaccountable diminution of vision and e prompt restoration to normal vision and enlargeent of the visual fields, after the use of the constant ectric current (voltaic alternatives). These observans I believe to be original with myself. A few other lmologists have closely approached them, how- W. F. Southard[1] observed in 1896 a case occura delicate woman, 26 years of age, in which e was a history of headache and diplopia for a riod of three months, followed by sudden blindness. fields were contracted and there were hemiopia and te scotoma of fixation in the right eye. Examn of the refraction revealed the following error: . C—1.75 ax. 180 L. E. C.—1.25 ax. 180. The earing of correcting lenses increased the vision. Improvement also occurred under the influence of rest, but recurrences of the blindness were common. Hysteria s excluded as an etiologic factor. P. B. Wing of acoma[2] observed a case in a robust, well-nourished y of 8 years, of failing vision, which lenses failed to lieve. It became progressively worse, and the fields came contracted. The condition was attributed to ffee, which the patient consumed at the rate of six to ght cups daily. One month after the institution of oper treatment vision was normal and the fields full.

The cases I have described I believe to belong to the ass of functional disorders of the retina termed retinal esthesia, as there seems undoubtedly to be a temporary spension of sensibility in that structure. Apparently seems to be a condition of fatigue due to overwork the time of life when the sensory elements are least epared for any strain. It will be recalled that these ses occurred between the ages of 8 and 16 years, and ostly in robust individuals, and not limited to the te race alone, as I have mentioned one case where is condition was found in a robust Indian girl.

Hysteria, however, I think, may readily be excluded om the etiology. The patients usually possessed no ncomitant signs, the color fields were not inverted, r were there any of the ordinary ocular symptoms of steria. Eyestrain has been suggested as a possible use, but it will be remembered that in only three were ere any of the ordinary asthenopic manifestations. hile errors of refraction were corrected in most cases, ere were seven instances in which the current was ed alone, and the response was prompt as usual and ere were no recurrences. Frequently the correction cepted during the affection was rejected when the elds and vision were restored. The only case in which ere was a complete return of the condition was one ving myopia, which was carefully corrected during the first attack, but required a change of lenses at the time of the subsequent attack; as this was a case of progressive myopia, the change in the glasses was due to this alone. In one case vision was normal and the fields contracted. Glasses were not called for, and recovery was prompt by the use of electricity.

The manner in which the electric current brings about its beneficial effects in these cases is not clear. It has been suggested to me that the constant current redirects the proper nerve impulses to the retina, and at the same time it would seem that these treatments served to increase the blood supply, and consequently the nutrition of the affected structure. In all of the cases mentioned, general rest from study was of value, showing that in large part the affection was nutritional in origin, despite the fact that the patients were apparently well nourished and healthy.

It gives me great pleasure to quote Dr. G. Granville Faught's experiences in the evolution of this treatment:

"Twenty years ago electrotherapeutics was mainly a matter of empiricism, and in no department was it more so than in that of the eye. Erb of Leipzig, in a publication dated 1883, says: 'We are thus compelled to acknowledge the deficiency of the theoretical basis of our electrotherapeutic knowledge; now, as formerly, it must be studied on an empirical basis.'"

As to the eye, Erbe says: "To my regret I must admit that very little is known with regard to the pathologic relations of the electrical irritability of the retina and optic nerve." In the use of the electric current at this time, Erb particularly advises that "sudden interruptions or reversal of the current should be avoided"; and, again, "do not make any interruptions or changes of polarity." Strümpell (Vickery, Knapp, Shattuck), writing in 1887, follows the teaching of Erb, and on the treatment of ocular paralysis says: "Of other remedies galvanic treatment gives the speediest relief. We pass weak currents transversely through the temples, or, what is usually better, put the anode on the back of the head and apply the labile kathode to the closed eye. Great caution, weak currents, and the avoidance of any great variations in the current are, of course, necessary; the current should not be too strong, and there should be no abrupt changes in it."

It was at this time and under these conditions that Dr. Fox and myself began the study of electrotherapeutics in relation to the eye. Among many other cases, my attention was early directed by Dr. Fox to those of retinal anesthesia, and in connection with these I conducted a considerable experimenture. In many cases a definite result was obtained by the ordinary application of the galvanic current, but not sufficiently speedy and certain to be satisfactory, so that I was finally led to consider the subject of Volta's alternatives. From the days of Volta it has been a well-determined fact that "if the current has been closed for some time in one direction, the irritability of the nerve is increased to opening in the same direction or closure in the opposite." However well known, no use was made of this in the matter of therapeutics until I took it up in connection with the treatment of retinal anesthesia. I was sure that what was eminently true as to motor phenomena would prove equally true in connection with sensory conditions, and my belief has been abundantly confirmed. After several years of experimenture, I affected a method of therapy which I designated as "Voltaic Alternatives" (Houston, Dictionary, "a term used in medical electricity to indicate sudden reversals in

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1. Pacific Med. Journal, May, 1902.
2. Annals of Ophthal., April, 1903.

the polarity of the electrodes of a Voltaic battery"), and I devised a "pole-changing handle."[3]

I regret to state that little or nothing has been done since then in this matter of voltaic alternatives. Dr. Fox and myself have had eminent success in numerous lesions of the eye, vitreous opacities, retinitis-pigmentosa, chorio-retinitis and choroiditis, by this method, and it is to be hoped that this article will lead others to follow in our footsteps.

In ordinary usage I employ a current of 2 milliamperes, and reverse it at intervals of two seconds, continuing the treatment to a period of ten minutes.

DISCUSSION.

DR. WALTER L. PYLE, Philadelphia, said that he believes this affection to be a reflex inhibitory paresis of the peripheral visual cells in the retina, acting in the same manner as a reflex paralysis of the orbicularis in certain cases of uncorrected or improperly corrected ametropic eye-strain. He has often noticed the deficient vision without sufficient ophthalmoscopic changes in ametropic young persons, particularly school girls, and he has seen speedy restoration of full visual acuity by the simple use of the ametropic correction. He has never measured the visual fields in these cases, and thinks that full credit should be given to Dr. Fox for calling attention to the perimetric findings. Dr. Pyle thinks that overwork is undoubtedly the main factor. In younger persons, malnutrition is probably an important cause. It is often due to ametropic eye-strain, and after proper refraction most of the patients recover without the application of electricity. The constant current probably overcomes the reflex inhibitory influence and undoubtedly greatly hastens the recovery of visual acuity. However, the careful correction of even very low degrees of refractive error is of great importance. Small amounts of astigmatism, particularly at oblique axes, should be looked for.

DR. E. E. HOLT, Portland, Me., stated that he has observed several of these cases. On taking the field of vision it is found to be markedly contracted. His experience has coincided with that of Dr. Fox, that electricity restores normal vision, and he has not found that they relapsed. The condition, he thinks, is brought about by overwork.

DR. G. E. DE SCHWEINITZ, Philadelphia, asked what is the distinction between the cases reported by Dr. Fox and those which have been described many times by various writers under the names of retinal asthenopia, retinal anesthesia and nervous weakness of sight, the inappropriateness of which he recognizes. These conditions occur in young subjects, usually school girls near the age of puberty, who present reduction of acuity of vision unimproved by optical therapeutics, contraction of the visual field, and normal ophthalmoscopic appearances. They recover under proper hygienic treatment. Dr. de Schweinitz agreed with Dr. Fox that they do not in the least represent hysterical manifestations because the ordinary signs of the hysteric field are not present, that is, permanent contraction and frequent inversion of the color lines. They do present, however, an unstable contraction of the visual field, and sometimes the so-called oscillating field. They seem dependent on some instability of the whole nervous mechanism.

DR. L. WEBSTER FOX said that there is a suspension of function in the retina and that it is not a hysteric one, he is sure. The contraction of the color fields corresponds to the field of vision at the time. If the normal field is down to 10, then all colors are visible up to that point. There has seemed to be no reversion of the fields, and therein it differs from the other class of cases (hysteric). In 1884 it was discovered that by changing the current rapidly in a motor nerve function could be restored where otherwise it could not be done. Dr. Faught was the first to adopt the idea in the treatment of a sensory nerve, and it is the rapid alteration that seems to bring about the result. He has invented a little handle by which this can be done very nicely. It is marvelous what one or two applications can do in some of these cases.

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[3] N. Y. Med. Jour., 1886, p. 564.

AN EXACT AND SECURE TUCKING OPERATION FOR ADVANCING AN OCULAR MUSCLE.*

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The fact that many advancement operations have been devised is evidence that there is dissatisfaction with the various methods. Many of these operations are very similar, and if the different descriptions are placed side by side it will be found that they could be arranged in such a manner as to show only slight variations, and yet, like the colors of the spectrum which merge from one into another, the two extremes will be found to be very different and many new principles may be detected which have gradually been introduced. The evolution is slow but upward, those new principles which have proven of value remaining while those not practical and false have been discarded.

I desire to demonstrate† my method of performing this operation, but before doing so wish to call attention to other operations of like character, i. e., muscle-folding operations, in order that those who have done original work in this field may be given due credit.

HISTORY OF FOLDING OPERATIONS.

Knapp[1] gives credit to J. F. Noyes[2] of Detroit for having been first to describe an operation for shortening of the muscle by folding (1874). "The tendon is divided near its insertion, and the distal end brought forward under the proximal end, lapped, and sutured. At the same time a portion of the tendon may be or may not be cut off. The point of insertion of the tendon is not changed in this method. The folding of a piece has, of course, the same effect as if so much of the tendon had been excised." This operation, while having enough points of resemblance to be included in a description of the evolution of shortening operations, is not a tucking operation, as the tendon was cut.

De Wecker[3] performed a folding of the capsule and tendon, which was described in 1885. He makes a vertical incision in the conjunctiva over the tendon and undermines the conjunctiva toward and around the cornea as far as the vertical meridian, opens Tenon's capsule at the lower border of the tendon, passes a hook under the tendon, incising the capsule where it emerges on the upper side. He then inserts one suture into the episcleral tissue above the cornea, and the other end through the opening in the capsule into the upper edge of the muscle on through the conjunctiva, and then ties this suture. A like suture is passed through the lower edge of the muscle and the episcleral tissue below the cornea.

Knapp[4] did a similar operation, which was described in 1886 as an improvement on de Wecker's. Knapp's modification consists in the use of one or two additional sutures inserted in a similar manner between these two tures. In both of these operations the tendon and psule were folded on themselves and not divided.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

† The operation was demonstrated at the meeting on a large manikin.

[1] H. Knapp: Norris and Oliver, p. 874.

[2] J. F. Noyes: A New Method of Operating for Strabismus. Transactions of the American Ophthalmological Society, 1874, p. 273.

[3] De Wecker: Sur l'opération du strabisme au moyen de l'avancement capsulaire, Annales d'Oculistique, vol. xc, 1883, p. 188; La combinaison de l'avancement capsulaire et de la ténotomie, Annales d'Oculistique, vol. xciii, 1885, p. 72; les opérations modernes du strabisme, Archives d'Ophtalmologie, vol. xiii, 1893, p. 1.

[4] H. Knapp: Advancement of Tenon's Capsule. Transactions of the American Ophthalmological Society, July, 1886.

In 1892 Lagleize[5] of Buenos Ayres described a fold-g operation *in which the tendon is folded on itself*, or ther the muscle is folded on the tendon. In his opera-on a piece of conjunctiva is excised over the tendon, a ook is passed under the tendon near its insertion and nother under the muscle. One needle of a doubly-ed suture is passed through the muscle and con-nctiva from within outward near the posterior hook, millimeter from the upper border of the muscle, hile the other needle is passed in the same manner one illimeter from the lower border. Both needles are carried under the conjunctiva to the cornea, into e episcleral tissue, and the threads tied, causing the uscle to be folded on the tendon. The tighter the reads are pulled the greater the effect. The tendon in is operation is not severed.

Savage[6] published, in 1893, the description of his peration. *The conjunctiva, and then Tenon's capsule,* cut just below the lower border of the muscle (when perating on a lateral muscle). Through this hole two abismus hooks are placed; one hook is pushed forward the insertion of the tendon and the other backward ward the belly of the muscle. One needle of a doubly-rmed silk suture is passed through the cut beneath the don and forced through the tendon near the upper order, close to the scleral attachment. The second dle is passed through the cut beneath the muscle lly, through the upper border of the muscle, then rough the capsule and conjunctiva; the same needle is sed back through conjunctiva, capsule and muscle di-ly under the last point pierced and near the lower order of the muscle, then passed forward under the uscle, to again emerge through the tendon at its inser-*ion just under the point pierced by the first needle.* Both hooks having been removed, the two ends of the suture are tied over the Price suture plate, thus producing the fold. The distinctive feature of this operation, which was not practiced in any operation described previous, is the folding of the tendon on itself by introducing sutures only in the muscle and tendon, and not into the sclera, and the use of the Price suture plate to prevent cutting of sutures.

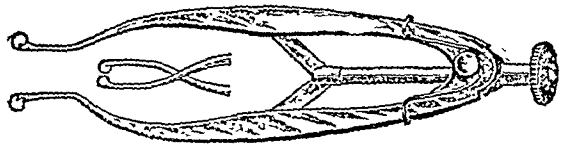

Fig. 1.—Author's tendon tucker.

Tenney of Boston devised in 1894 an instrument to aid in the performance of Savage's operation.

Grandclément's operation,[7] described in 1893, is as follows: With a pair of fixation forceps he raises a vertical fold through which he passes the needles of a doubly-armed suture (through the conjunctiva capsule and tendon), making a loop.

Valk,[8] working independently, described his method in 1895. After dissecting Tenon's capsule, he lifts the tendon with his pair of twin strabismus hooks, carries a catgut suture through the tendon from without inward, close to the sclerotic, passes backward under the muscle through the muscle from within outward; crossing the *muscle, the suture* is reinserted from without inward through the muscle back to a point above or below the place at which the suture was first inserted. Thus the suture is placed like that of Savage. When tied, the tuck is taken. Valk was the first to suggest the use of an absorbable suture.

Greene[9] described a tendon-tucker and his method of tucking in 1899. He says: "I have tried several expedients to get rid of the objectionable features of the operation which I have already mentioned, when, several years ago, I conceived the idea of taking a tuck in the tendon, which I did several times by the use of sutures. I thought it a new idea, but on searching the literature on the subject I found it had been done before by J. F. Noyes of Detroit, in 1874, and Lagleize, in 1892." Greene objected to the use of the conjunctival sutures, and, after producing the tuck, introduced one catgut suture, binding the middle of three layers of tendon; thus he followed the practice of Savage and Valk in introducing his sutures only through the tendon and muscle. His tendon-tucker was an ingenious device, and I am of the opinion that he deserves more credit than he claims for having thus facilitated the performance of this operation.

In a paper published April, 1902, Colburn[10] describes an operation which he performed, and he states that it was first described by him in a discussion at the session of the American Medical Association in 1888: "The *suture* was *introduced, passing through the* tendon at its point of attachment, thence beneath the capsule along the upper margin of the tendon, and backward to the point of entrance. The single suture is then drawn and tied, the conjunctival flap returned to its place and held by a suture." Colburn also describes various other methods of tucking a tendon and shows a cut of a double hook he had used, shaped out of another instrument, and also a crude device made from a pair of ear forceps, to aid in taking the tuck. In addition to the above-described methods, there are others who have done work along similar lines.

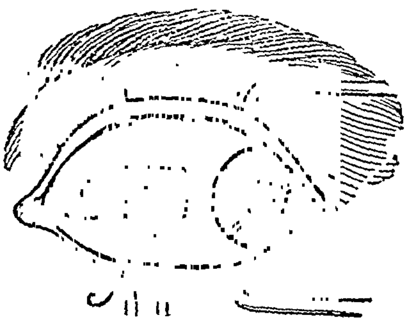

Fig. 2.—Tucker Introduced.

In February, 1902, my method[11] was described, but I have since improved it by the incorporation of certain details. This reason, and the additional fact that many ophthalmologists have written requesting a more detailed explanation, induces me to present this description.

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[5] Lagleize: Archives d'Ophtalmologie, vol. xii, 1892, p. 668.

[6] G. C. Savage: Editorial, Ophthalmic Record, March, 1893.

[7] Grandclément: La cure du strabisme obtenue ou complété par un simple froncement sousconjonctival du muscle et de la capsule, à l'aide d'une anse de fil, Bulletins et Mémoires de la Société Francaise d'Ophtalmologie, 1893, p. 291.

[8] F. Valk: Post-Graduate (N. Y.), July, 1895.

[9] D. M. Greene: Correction of Divergent Strabismus by a New Method and New Instrument, Ophthalmic Record, September, 1899.

[10] J. E. Colburn. Muscle Tucking—A Report of Cases and Conclusions, Ophthalmic Record, April, 1902.

[11] F. C. Todd: A Secure Advancement Operation Performed with the Aid of a New Tendon Tucker, Ophthalmic Record, February, 1902. Improved Tendon Tucker, Ophthalmic Record, March, 1903.

DESCRIPTION OF AUTHOR'S METHOD OF PERFORMING THE TUCKING OPERATION.

To avoid confusion and to enable the reader to secure a more definite idea of the operation, the tucking of an internal rectus will be described. In many cases the external rectus is first tenotomized, then a flap of conjunctiva is dissected up and turned back toward the internal canthus, and Tenon's capsule is freely opened so as to clearly expose the tendon of the internal rectus from its insertion backward for a quarter of an inch. A strabismus hook is now placed under the tendon from above and made to emerge below; the tendon is lifted from the globe to facilitate the introduction of the tucker.[12] The prongs of the tendon-tucker being crossed, the one toward the internal canthus, being uppermost, is placed under the tendon (passing it in at the lower border of the tendon); the strabismus hook is now removed (Fig. 2), the screw head at the distal end of the instrument is turned to the right, causing the upper prong to pass toward the cornea as the lower prong passes toward the internal canthus; this produces the tuck in the tendon as the prongs are separating and causes the eye to turn inward. The tuck should be large enough to secure the desired effect.[13] Catgut sutures are now placed in the two layers of tendon midway between the prongs as follows: *Carry the needle of one suture under the upper border nearly to the middle of the tendon, bring it outward through the two layers and tie it; place another suture in the same manner, including nearly the lower half of the two layers of tendon (Fig. 3), and tie it.*[14] This leaves the nutrient artery undisturbed between these two ligatures. Now carry the needle of a doubly armed silk suture through the two layers of tendon just back of the *upper* catgut ligature from within outward, then up through the conjunctival flap from within outward; pass another similar doubly-armed silk suture just back of the *lower* catgut ligature from within outward and through the conjunctival flap; pass the needle at the other end of the *upper* silk suture underneath the conjunctiva into the episcleral tissues (above and internal to the cornea), bringing it out through the conjunctiva; now tie with only one knot (*so that it can be regulated later*) these two ends of this *upper* silk suture (Fig. 4). While an assistant holds the two ends of this suture, release the tucker (loosening it by turning the screw head) and remove it. Now insert the second needle of the *lower* silk ligature below the cornea into the episcleral tissues and tie in one knot the two ends of this *lower* suture in the same manner as the *upper* suture was tied. The pressure on the eyeball exerted by the tendon-tucker disturbs for the time being the exact position of the eyeball; *it now having been removed*, the two eyes may be compared and measured and the silk sutures tightened until the desired effect has been secured. These sutures will not slip as they pull against the catgut ligatures at one end, and are inserted into firm scleral tissue at the other. *After the desired effect is secured the second knots are tied* (Fig. 5).[15] *It will be observed that these regulating silk sutures also serve to stitch the conjunctival flap into place.*

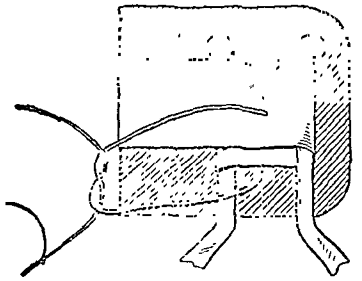

Fig. 3.—Placing of catgut ligatures after tuck has been made.

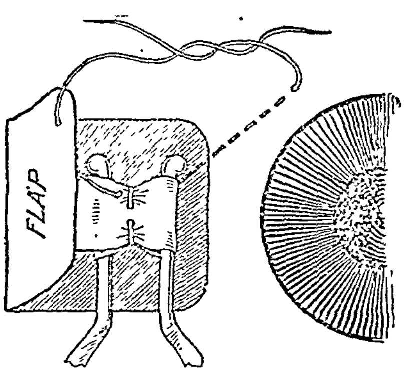

Fig. 4.—Showing placing of upper regulating (or retention) suture.

This operation is adapted to any case where an advancement operation is indicated and is found of especial service in those rather difficult cases where strabismus has resulted from an overcorrection of an opposite strabismus.

It is preferable to use cocain anesthesia for all muscle operations, as general anesthesia disturbs the physiologic balance; for instance, in a case of convergent strabismus, the eyes may diverge when the patient is asleep and the operator can not, therefore, determine the effect *of his operation until the patient is awake.* The surgeon can, however, perform this tucking operation, inserting the sutures and tying only one knot in the silk *regulating sutures, and when the patient is thoroughly awake, under cocain anesthesia, these regulating sutures may be adjusted so as to secure parallelism and the second knot may then be tied.*

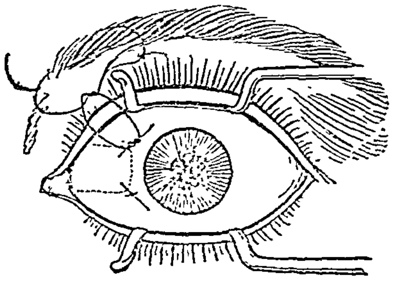

Fig. 5.—Tying of silk sutures.

The advantages of the tucking operation over any advancement operation when the muscle is severed, as given by Savage,[16] are: "First, it is easier of accomplishment; second, its plane of rotation is less likely to be changed when there is no indication for changing it;

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[12] This instrument is universal, i. e., it can be used on any of the recti muscles. Many of the instruments have been imperfectly made, the *commonest fault* being a sharp point and inefficient hook at the ends of the prongs so that the instrument slips out during the operation. If correct, the instrument will cause no such annoyance.

[13] Chromicized catgut is best to use, as ordinary catgut sometimes absorbs too quickly.

[14] The needle is easily introduced through the two layers of tendon by tilting the tendon-tucker so as to lift the prong nearest the cornea.

[15] A bowknot may be tied and the ends brought out through the nearer canthus where they may be fastened to the cheek or nose with collodion, thus allowing for more regulation by tightening or loosening the next day or later.

[16] G. C. Savage: Ophthalmic Myology.

third, the stitch is not so likely to cut its way out, and, and if it does so, or if the knot should become untied, the case would be no worse than before operation; whereas, if either of these accidents should happen to an advancement, before adhesion has formed, the recession of the muscle might be farther back than its original attachment."

In addition to these advantages, I claim for my method:

1. Exactness. Perfect adjustment of the eye may be secured at the time of operation when tying the silk sutures after the tuck has been taken. (In nearly all advancement operations the operator is obliged to estimate the amount of the effect desired and does not know until his operation has been completed the exact amount of effect that has been produced.)

2. Security. When the operation is completed the stitches can not slip and the tendon will remain where it has been placed.

3. Ease. The operation is very easy of performance, made so by the use of the instrument.

4. Flexibility. The smallest or the greatest amount of deviation may be produced.

5. Strabismus of high degree. The greatest degree of effect can be produced when accompanied by a tenotomy of the opposing muscle, and thus a strabismus of the highest degree can be corrected by operation on one eye alone if desired.

DISCUSSION.

Dr. G. C. Savage, Nashville, Tenn.—My operation differs from Dr. Todd's in several respects, one being that there is less trauma in mine. Dr. Todd's operation is a combination of my tucking operation and the Laglieze lapping advancement operation. These three operations are the only ones that should be done for giving added power to a muscle. In neither of these operations is the tendon of the muscle severed. Again I wish to be recorded as saying that no rectus muscle should ever be cut entirely loose from the globe, either for setting back its attachment or as a preliminary for advancing it. It would frighten me if I were to cut a tendon entirely across. My muscle shortening operation can be done with the aid of the Todd tucker, or the Tenney or Valk folder, but I prefer to use two large strabismus hooks. The technic of my operation is simple and the traumatism is slight. I make a cut near to, and parallel with, a border (lower if the muscle is an externus or an internus) of the muscle, through the conjunctiva and capsule. Through this incision I pass one of the large hooks beneath the tendon, carrying it forward to the insertion. Lifting the tendon with this hook, I pass one of the two needles (the suture is armed with two needles) through the incision and make it penetrate the tendon near its upper border and at its insertion, and pass it on through capsule and conjunctiva. An assistant then inserts the second hook and carries it back beneath the belly of the muscle as far as possible and now slightly raises the muscle. Still holding the first hook, I now pass the second needle through the incision to a point of the muscle similarly related to the muscle plane with the point of puncture of first needle, and at such a distance behind the attachment as may be judged necessary; the needle is now pushed through muscle, capsule and conjunctiva and the part of the suture under the muscle is drawn into position parallel with it. The same needle is now passed through the conjunctiva, capsule and muscle near its lower border, immediately beneath the second puncture, and is brought out through the cut. The thread is now drawn on until the loop rests against the conjunctiva. The second hook is now removed and I now pass the same needle through the incision, beneath the tendon, and push it through the tendon near its lower border and at its insertion, and on through capsule and conjunctiva, being careful that the third and fourth punctures are in a plane parallel with the rotation plane of the muscle. I now pass the two needles through the two holes in the suture plate and complete the operation by tying a surgeon's knot on the silver plate; and in doing so I draw that part of the muscle beneath the loop into contact with the tendon at its insertion, thus shortening the muscle to that extent. It is a simple operation, easily done and efficient. The muscle capsule and conjunctiva are all included in the stitch. The knuckle of tissue thus formed needs no stitch to flatten it, for it soon disappears by absorption. This suture needs no anchoring sutures to strengthen it.

A mistake made in this operation and in other operations requiring a stitch is in allowing the suture to remain in too long. The stitch should be removed on the fifth day, even a day earlier if there is too much irritation excited by its presence. I always use silk. In the Laglieze operation the conjunctiva is incised over the tendon and turned back. A strabismus hook is passed beneath the tendon for the purpose of lifting it, when one needle of the double-armed suture is passed through the muscle after the manner of sewing on goods, thus placing a loop of thread beneath the belly of the muscle. Each of the two needles is now passed into the scleral tissue just as far in advance of the insertion of the tendon as the loop already taken is behind the insertion. The scleral punctures must be related, ordinarily, to the plane of rotation as are the puncture and counter-puncture in the muscle. In tying the surgeon's knot that part of the tendon and muscle between the insertion and the loop is drawn over the insertion to the scleral stitches, and is kept flat against the globe. This done, the conjunctival wound is closed by one or more sutures. The scleral stitch should be taken parallel with the canal of Schlemm, and behind it.

It is now clear that the operation shown on the manikin by Dr. Todd is a combination, with some modifications, of my muscle-shortening operation and the Laglieze lapping attachment operation. My objection to the tucker shown by Dr. Todd is that, if one wishes to change the plane of rotation of the muscle to cure a complicating cyclophoria it would be hard to accomplish, whereas it is easily done when the strabismus hooks are used. The Todd operation is a good one, the chief objection being the amount of trauma inflicted. More effect can be gotten from the Laglieze operation than from mine or Todd's.

Dr. Wendell Reber, Philadelphia—I am compelled to say that I do not think advancement is an easy operation. One must be doing a great many of them to make it at all easy. All the gentlemen with whom I have talked would rather do any other operation than an advancement. Tenotomy is easy; as to the result one gets, that is different. Whether a muscle is or is not to be cut away from its attachment depends on whether we aim at cosmetic effect or binocular vision; if for cosmetic effect it does not make any difference. It is generally done for that purpose and binocular vision is not a frequent result. That operation which enables us most clearly to see what we are doing seems to me the most commendable. The Worth operation is one to be carefully considered. I find it comparatively easy to do, and the effect secured at the operation is not lost. I confess that Dr. Todd's operation has one element to make it desirable and that is the ease with which the effect can be regulated after the anesthesia has worn off. When Dr. Todd brought out his first tucker I used it in three or four cases, and while we were not enthusiastic about it, we thought that perhaps we had not used it enough to become proficient; I felt that the tucker was in the way all the time and that the effect was likely to be a temporary one. All the sutures should be fast so that the operation may be made more definite. I think the Worth operation is to be preferred; the reaction is slight and the effect is permanent.

Dr. L. Webster Fox, Philadelphia—I had the pleasure of having Dr. Todd demonstrate his tucker operation in my clinic last Monday. I had attempted the operation several times, but the result was not satisfactory. Dr. Todd explained to me that the instrument I was using was not made correctly. I failed to bring about a good result by an improperly made instrument, so that it is not fair to condemn an operation until you have seen the surgeon who devised it, use the instrument himself. Dr. Todd performed the operation in my clinic very successfully, even with the very inferior instrument in my possession.

DR. OSCAR WILKINSON, Washington—I have been with Dr. Worth in a great many of his operations and have watched the results, and in my own practice no other advancement operation has given such good results. The operation depends largely, of course, on the object we wish to obtain and the amount of defect to be corrected. Where there is a large defect I should be skeptical as to the results of the tucking operation. It may be very valuable where the defect is slight, and it is certainly an ingenious idea.

DR. MARK D. STEVENSON, Akron, Ohio—I make a long, vertically curved incision through the conjunctiva, the center nearly touching the limbus, the ends curving away from the cornea. Tenon's capsule is next opened and the conjunctiva and capsule being pushed well back the muscle is seized by my advancement forceps and then cut free from the sclera. A sharp needle on a silk suture is next passed from without inward through the junction of the upper and middle third of the tendon and is then passed outward through the upper margin of tendon, and again passed through the tendon just behind the first point of entrance. It is then carried near the edge of the cornea and passed deep through episcleral tissue into the sclera. The needle on the other end of the suture is likewise used on the lower portion of the tendon and the two being first tied in a single knot, are tightened until effect required is secured, when a surgeon's knot may be made. All superfluous tissue should be removed. By this suture the upper and lower portions of the tendon are securely held, while the middle portion also affords support by the cross piece of the suture. The circulation in the middle portion is not interrupted, however, and only one knot is necessary.

DR. JOHN E. WEEKS, New York City—Any operation that necessitates doubling the tendon or muscle into a cord is certainly theoretically imperfect. The operation of Dr. Savage is such an operation. That difficulty has been avoided to some extent by the last speaker. The ideal operation is one that will maintain the normal width of the tendon, in addition to accomplishing the result desired. In order to maintain the width of the tendon, sutures must be entered at the upper and lower borders of the tendon. If only two sutures are used the middle portion can not be fastened as it should be, but with three sutures the width of the tendon can be controlled perfectly. My experience has led me to the conclusion that deviation of the muscle in any way imperils the result of the operation. For some years I used the advancement by tucking as devised by de Wecker, with very good results. One can not tell by half a millimeter the amount of the effect that will be produced by any operation. Another thing that is detrimental is the strangling of a portion of the tendon. That is done when the middle or the sides of the tendon are tied. It can be avoided by quilting the sutures. It is important to go well into the scleral tissue in passing the bulbar sutures. Another thing, do not delude yourselves in believing that a sufficient plastic process will be set up in four or five days to retain the advanced muscle. It ordinarily requires a longer time. Leave the sutures in from seven to ten days in order to be assured of the permanent retention of the tendon in the position in which it is placed at the time of operation.

DR. W. E. LAMBERT, New York City—I should like to substantiate what Dr. Weeks has just said. I am not an advocate of the tucking operation. I find advancements, or resections and tenotomies perfectly satisfactory.

DR. J. L. BORSCH, Philadelphia—Dr. Todd in his paper says that he can overcome a secondary strabismus by tucking the muscle that allowed the eye to deviate. The tendon, in a secondary strabismus, is so retracted that in most cases it can hardly be found; and what is advanced is the capsule, and the eye is thus straightened. It has been my privilege to assist de Wecker in many operations for capsular advancement, and have performed many myself, and fail to understand why an operation so simple and so effective should be modified. The manner of placing the sutures, it has been said, prevents their slipping; if the sutures are of the proper kind this will not occur. Dr. Todd assures, you can regulate the effect exactly with his method. This can also be done by grasping the capsule in the broad forceps, but in the majority of operations one must overcorrect a few degrees for a day or two. As for judging the amount of deviation corrected, I wish to say, that by using the de Wecker strabometer, which is extremely simple and portable, you can measure the exact deviation of the eyes and regulate the operation accordingly. I venture to say that the fraternity who do many operations will bear me out in the statement that we must simplify and not complicate operations in ocular surgery. For myself I am not ready to abandon the de Wecker operation.

DR. F. C. TODD—The great number of operations that have been described is evidence that we are not satisfied with what has been done so far in this work. As to Dr. Savage's criticism that torsion could not be effected by my operation, I would say that that is one of the advantages of the use of the instrument; the torsion can be easily regulated. In the second case I operated on I was obliged to produce torsion. By changing the axis of the instrument and inserting the scleral sutures above or below, as the case may be, the desired effect may be readily produced. Of course, the idea of the ligatures above and below is to prevent the cutting of the suture along the fibers of the tendon, which takes place in many of these operations and, as it seems to me, would take place in Dr. Savage's operation. I would remind Dr. Weeks that while he cuts off that portion of the tendon I ligate it, and I san not see that it makes any difference whether it is removed by atrophy or cutting; the results are the same; we do not care to preserve that portion of the tendon. Another advantage of this method is that the flap lies down and makes a smaller lump, which later disappears. In regard to the administration of chloroform, in these cases I rarely use chloroform; I prefer not to. As to the matter of pain, of course, many of these operations are somewhat painful, but that depends largely on the pulling of the muscle. With this instrument the pull is gradual and steady, while the pain is caused mostly by jerking the muscle. Now someone has spoken of doing a tenotomy. Each case must be treated on its merits. I would suggest that where one eye is involved it might be wise to do a tenotomy and an advancement, but where you have an alternating strabismus or where the movement of the two eyes is about equal we might desire to do two advancement operations.

THE PASSAGE OF DIFFERENT FOODSTUFFS FROM THE STOMACH.*

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In the transfer of food from the stomach to the intestine two factors are concerned, the gastric waves of peristalsis and the pyloric sphincter. It is now known that under normal conditions the peristaltic waves course from the middle of the stomach to the pylorus without interruption during the whole of a digestive period. How the waves will affect the food is determined by the action of the pylorus. If the pylorus remains closed, the repeated waves over and over again churn the food with the gastric secretions; if the pylorus opens, these same waves act as the motive power to force the food onward.

The determinative function of the pylorus was recognized by the fathers of medicine, for they gave the ancient terms *pylorus* (keeper of the gate), *rector* and *janitor* to the sphincter, and assumed that it possessed a "will" which fixed the fate of ingested food. Van Helmont, in the days when the learned confused mysticism with science, presented his reasons for believing that the pylorus was the seat of the soul. It is certain that this wonderful sphincter holds the chances for good and evil in many of the most essential processes of digestion. The retention of food in the stomach to undergo gastric digestion, the gradual delivery of food from the gastric reservoir into the region of intestinal digestion, so gradual that the important digestive processes near the pancreas shall proceed regularly and without disturbance; the checking of irritants in their onward passage through the alimentary canal—all these functions are in the control of the pyloric sphincter.

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Differing views of the way in which the pylorus opens and permits the food to pass have been set forth. Oppenheimer,[1] in 1889, and Rossbach,[2] in the next year, declared the food was all thoroughly mixed with the gastric juice, and that only four hours or more after eating did the sphincter relax and allow the stomach to empty. These observations, however, have not been substantiated; the errors in them probably were due to the nature of the method employed, for both clinical findings with the stomach tube, as Ewald and Boas[3] have demonstrated, and studies with the *x*-rays on the undisturbed subject,[4] prove that the stomach is not emptied all at once at the end of gastric digestion, but progressively during the period. In an investigation of the passage of food from the stomach we have, therefore, to consider agencies maintaining an intermittent closure of the pylorus, agencies which usually keep the channel closed, yet occasionally open it to permit portions of the digested food to advance.

Both mechanical and chemical agents have been supposed to determine the emptying of the stomach. Rossbach,[2] for example, thought that the stomach emptied only at the completion of gastric digestion, because the muscular contractions at that time were (under the conditions of his observations) more intense than before. enzoldt,[5] after an extensive study of the periods during iich various foods remain in the stomach, noted that ch foods as delayed the appearance of free hydrochloric acid remained longest in the stomach. Verhaegen,[6] on the other hand, declared that it mattered little in the passage through the pylorus whether the food was acid or neutral. In criticism of these statements, it may be said that Rossbach's observations were made on morphinized animals, with opened abdomen, conditions known to disturb the normal activities of the digestive tract; and in Penzoldt's[5] studies, although the amounts of food are stated, no attempt was made to have these amounts uniform, or to have the food of the same consistency. Furthermore, Penzoldt was dependent on securing remnants of the food by means of the stomach tube, a procedure which furnished no data concerning the rate at which the stomach was emptied, and was also objectionable in interfering with the digestive processes. This method, moreover, leaves the investigator in doubt as to which of the factors, the gastric peristalsis or the pylorus, caused the retardation of the food. Verhaegen's[6] conclusions are based on observations with the stomach tube on only four individuals, two of whom were admittedly pathologic. In the presence of strong evidence against his conclusions, the small number of cases observed by him must furnish him inadequate support.

Because of the differences of opinion which the above discussion has shown to exist, and because of the importance which the passage of food from the stomach bears both to physiology and to practical medicine, further investigation of the factors concerned in the process is desirable.

THE METHOD OF INVESTIGATION.

In studying the agencies controlling the pyloric passage, it is well, for the sake of simplicity of conditions, to employ foods predominantly proteid, fat or carbohydrate. Such foods were used in this investigation. Boiled beef, free from fat, boiled whitefish and the white meat of fowl are examples of proteids which were fed; beef suet, mutton and pork fat are representatives of the fats; starch paste, rice, and potatoes, of the carbohydrates. In all cases full-grown cats, deprived of food for the twenty-four or thirty hours previous to the experiment, served for the observations. The food was invariably given in uniform amount, 25 cubic centimeters, and with uniform consistency, the consistency of thick mush. Before the food was given to the animals it was mixed with 5 grams of subnitrate of bismuth. Comparison of subnitrate of bismuth with other insoluble heavy salts has shown that it has no peculiar effects on the movements of the alimentary canal; and clinical studies by Schüle[7] have proved that the addition of subnitrate of bismuth to food does not interfere with gastric motility. The animal thus fed with food mixed with bismuth subnitrate was exposed to the *x*-rays, and the movements of the food in the stomach and small intestine observed by means of the shadows cast on a fluorescent screen. The observations were recorded at regular intervals, one-half hour, one hour, and every hour thereafter for seven hours following the feeding. The records consisted of outlines of the shadows of the food, traced on transparent tissue paper laid over the fluorescent surface. Inasmuch as the diameter of the intestines varies only slightly, the area of cross-section of the contents may be disregarded, and the aggregate length of the shadows of the food in the small intestine may be taken to indicate the amount present. By comparing the aggregate lengths of the shadows cast by the intestinal contents it is possible to know the relative amounts of food in the intestine at different times as well as the relative amounts of different foods present in the intestines of different animals at the same time after eating.

It is obvious that the method has defects. For example, loops of intestine are not always parallel to the screen, and the loops not parallel may not always form the same angles with the screen, and they would, therefore, be variously foreshortened. It may be said in answer to this objection that the animals were stretched on their backs and the abdominal wall flattened both by the stretching and by the pressure of the fluorescent screen, so that the loops must lie nearly parallel to the screen, except, possibly, at short dorsoventral turns from one loop to another. That these turns were not a serious source of error was proved by massage of the abdomen, which rearranged the coils; tracings made before and after such treatment showed only slight variations in the aggregate length of the shadows. Another possible defect of the method arises from such overlapping of the loops that two loops, or parts of two loops, cast a single shadow. Care was always taken to obviate this error by separating by pressure with the finger loops lying close together. Still further faults of the method are found in the variations in the thickness of the food masses in the intestine, and the changes due to absorption, which proceeds at different rates with the different foods. But these defects must be regarded as slight, especially in the early stages of intestinal digestion, when compared with the great and characteristic differences in the amounts of food present in the intestine when carbohydrates, fats and proteids are separately fed.

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[1] Oppenheimer: Deutsche med. Wochenschrift, 1889, xv, p. 125.

[2] Rossbach: Deutsches Archiv für klin. Medicin, 1890, xlvi, pp. 296, 317.

[3] Ewald and Boas: Virchow's Archiv, 1885, ci, p. 364.

[4] Cannon: American Journal of Physiology, 1898, i, pp. 368, 369, 378.

[5] Penzoldt: Deutsches Archiv für klin. Medicin, 1893, ii, p. 545.

[6] Verhaegen: La Cellule, 1897, xiv, p. 33.

[7] Schüle: Zeitschrift für klin. Medicin, 1895, xxviii, 6, 500.

What these differences in the treatment of the three kinds of foodstuffs by the stomach are, will now be stated. The results here set forth are based on between 600 and 700 observations on 80 to 90 cases.

RESULTS.

The characteristic differences in the aggregate length (in centimeters) of the intestinal content with the various foodstuffs at definite times after eating are illustrated by the following average figures:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Fats (15 cases)	5	9	14	17	16	13	13	9
Proteids (10 cases)	1	5	18	21	23	19	17	14
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6

Note that the carbohydrates and fats both begin leaving the stomach soon after they are ingested; but the carbohydrates leave rapidly, while the fats leave slowly. The curve representing the carbohydrate rapidity of passage would have a quick rise to a high maximum at the end of two hours, then a slow drop; the curve for fats would be a long, low curve, with no prominent maximum point. The figures for proteids are of especial interest, for they show that the proteids begin to pass out much later than either carbohydrates or fats (in many cases of proteid-feeding nothing left the stomach during the first half hour, and frequently nothing was out at the end of an hour, though peristaltic waves were running regularly from the beginning), and, moreover, after the proteids begin to leave the stomach, they leave slowly. The curve for proteids would show a slow rise to a maximum at the end of four hours, and then a gradual fall.

Many confirmations of these figures have been secured. For example, when proteids are fed first and carbohydrates later, the proteids are pressed more into the pyloric while the carbohydrates lie more in the cardiac end of the stomach. Under these circumstances, the presence of the proteids near the pylorus delays the discharge of the carbohydrates, as the following comparison of average figures in two such cases with the average proteid figures will clearly show:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Proteid first, carbohydrate second	2	6	15	21	29	34	28	22

On the other hand, when carbohydrates are fed first and proteids second, the presence of the proteids in the cardiac end of the stomach does not materially check the exit of the carbohydrates. A comparison of average figures in two such cases with the average carbohydrate figures will make this relation clear:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Carbohydrates first, proteids second	4	23	35	28	25	18	14	7

The most significant feature of the above tables is undoubtedly the remarkable difference between the figures for carbohydrates and for proteids. Why are the carbohydrates, which are not digested by the gastric juices, permitted to go quickly onward into the intestines, where they are digested, while the proteids, digested in the stomach, are retained there to undergo digestion? What fine mechanism of the digestive economy could see to it that the gastric part performs its function well when food it acts on is present, and lets it waste but little time or energy with food it can not change? Such apparently purposive functioning recalls the ancient attribution of a "will" to the pylorus, supposed to control the movements of material through the channel with deference to the body's welfare. Is there, however, a more simple and direct explanation of these activities?

If the presence of free acid in the stomach and near the pylorus is a stimulus to the relaxation of the pyloric sphincter, the interesting mechanism is largely explained. Both carbohydrate food and proteid stimulate the gastric secretion in abundance, as researches on dogs by Pawlow and his pupils,[8] and as clinical studies on man, have shown.

Now, inasmuch as carbohydrates provoke an acid secretion and do not unite chemically with it, free acid is at once present in the stomach; whereas with proteids, since they join with the acid secretion to form acid proteids, free acid does not make its appearance for some time. Thus the carbohydrates would begin almost immediately to pass through the pylorus. Thus proteids would be delayed.

The hypothesis that the presence of free acid in the stomach opens the pylorus can be tested. Feeding a carbohydrate mixed with an alkaline fluid would delay the appearance of free acid in the stomach, and, according to hypothesis, should also delay the passage of the food. The similarity between the average figures from two cases fed on crackers moistened with 1 per cent. sodium bicarbonate, and the average figures for proteid, shows how closely the addition of the alkaline fluid makes the figures approximate.

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Alkaline carbohydrate	0	4.5	19	28	31	29	25	21

The converse of this process also was tried. Proteids changed to acid proteids, and freed from all excess of acid were fed and the rate of discharge recorded. The following average figures of three cases of acid proteid (lean beef acid with hydrochloric acid), compared with the average figures for carbohydrates, show a remarkably close relation throughout:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Acid proteid	6	30	43	39	28	21	14	10

These two tables show that alkaline carbohydrate, like ordinary proteid, leaves the stomach slowly, while acid proteid leaves the stomach quite as rapidly as carbohydrate food. All cases which have been tested harmonize with the idea that conditions delaying the appearance of free acid in the stomach delay the discharge of the food, and conditions favoring its appearance hasten the discharge.

At first thought it might seem that acid added to carbohydrate food would still further increase the rapidity of the discharge. Such, however, is not the fact. When 0.4 per cent. hydrochloric acid is added to crackers in sufficient quantity to make a thick mush, the figures secured do not vary much from those secured when crackers and water are fed:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Crackers and water	10	23	43	46	43	30	19	5
Crackers and 0.4 per cent. HCl	8	18	41	51	45	25	21	17

But if free acid is the stimulus to the opening of the pylorus, why does not the addition of free acid to the food open the pylorus and hasten the emptying of the stomach? How is the paradox to be explained? It is here that the reflexes from the duodenum must be considered.

In 1893 Hirsch[9] observed that the introduction of acid into the duodenum through a duodenal fistula inhibited for a time the passage of food by the opening. Serdjukow,[10] one of Pawlow's students, confirmed the work of Hirsch. It was impossible to tell by the methods these investigators employed whether the acid in the duodenum checked the gastric peristalsis, or compelled a prolonged contraction of the pyloric sphincter. Observations with the *x*-rays show that, although there is no cessation of gastric peristalsis after the advance of acid food into the duodenum, the pylorus does not for some moments relax. The duodenal reflex of Hirsch and Serdjukow must, therefore, affect the pyloric sphincter.

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[8] Pawlow: The Work of the Digestive Glands. English translation, London, 1902, p. 35.

[9] Hirsch: Centralblatt für klin. Medicin. 1893, xiv, p. 73.

It is now possible to explain the slow passage of fats from the stomach. Fats are unlike either proteids or carbohydrates in that they are seldom eaten as a pure, or even predominant, foodstuff. When fats in almost pure form are fed to animals the gastric peristalsis is often observed to be slight, and, according to Pawlow, the flow of gastric juice is not stimulated. When fats enter the duodenum, however, they cause the same reflex that acid causes.[11] Thus, by a diminution of the influence opening the pylorus, and by a continuance of the influence closing it, the fats are long retained in the stomach, and only slowly passed along.

THEORY OF THE ACTION OF THE PYLORUS.

Evidence has been presented in the foregoing paragraphs which would explain the remarkable activities of the pylorus in the presence of food as largely due to chemical stimulation. The degree of contraction of the pyloric sphincter when at rest varies,[12] but the effect of particles of food in keeping the sphincter contracted[4] indicates that the mere mechanical presence of food in the stomach will produce a closure of the pylorus. After food has reached the stomach all evidence points to the probability that the signal for a movement onward into the intestine is the appearance of free acid. Free acid on the stomach side of the pylorus would thus be the stimulus to open the pylorus and initiate the chemical control of the sphincter. The opening of the pylorus permits the exit of a portion of the acid chyme. There is proof that acid in the duodenum closes the pylorus and keeps it closed. Thus the acid chyme would go forth from the stomach, and, with its acid, close the gate behind it. But acid in the duodenum is known to be the stimulus for the flow of the alkaline secretions of the pancreas.[13] No inorganic acid is normally present beyond the first few inches of the small intestine.[14] The acid, therefore, is here neutralized. As the neutralizing of the acid proceeds the stimulus to the closure of the pylorus is weakened, until the acid in the stomach can again open the pylorus. Again the food would pass out and the gate close till the duodenal changes finish their slower course.

Thus, automatically, carbohydrates, on which the stomach works no change, would go early and quickly into the intestine, where they meet their proper ferment; thus, automatically, proteids would be retained in the stomach to suffer alteration by the gastric juice, and only after such alteration be permitted to go on; thus, automatically, the intestine would be saved from oppression by overwhelming discharges from the gastric reservoir; and, by this same automatic mechanism, the gastric secretion, harmful to the action of the intestinal ferments, is rendered innocuous because of its admission, little by little, into the duodenum.

DISCUSSION.

Dr. Winfield S. Hall, Chicago—I will note in a few words the relation between Dr. Cannon's findings and something that I have discovered in my experiments in dietetics in my department, namely: Patients with acute gastritis can take with comfort egg lemonade earlier than they can take any other form of food, and it is our custom to give that at the beginning of feeding after they have had the period of rest that Nature is calling for in an acute case of gastritis. The earliest food that we can give is very small doses of egg lemonade every two hours. Dr. Cannon's discoveries regarding the influence of acid make it evident that this egg lemonade, being in the condition of acid albumin and already half digested, passes readily right on through the stomach, without exciting or irritating it, and down into the duodenum, where its digestion is completed.

Dr. Charles Harrington, Boston—Did the gluten curve take that form on account of the presence of carbohydrates, which are commonly found in large amounts in commercial glutens?

Dr. D. H. Bergey, Philadelphia—How does Dr. Cannon account for the prolonged time of absorption from the stomach? Our usual idea has been, I think, that food passes from the stomach in a much shorter time than his curves indicate. Does he believe that the food really remains in the stomach for that length of time, or is it due to the shadows cast by the subnitrate of bismuth remaining on the mucous membrane?

Dr. Fenton B. Turck, Chicago—One interesting point that Dr. Cannon has brought out here is that the presence of acid or alkali does not materially influence the peristaltic motion and that the chemical composition of the food does not influence the motions of the stomach. The peristaltic waves he found extending over to the pylorus were independent of the character of the stomach contents. In this difference between starch and proteid, the more rapid passage of the starch was not due to increased peristaltic waves caused by carbohydrates, nor to lessened peristaltic waves influenced by diminished stimulatory action of the proteid on the muscle fibers of the gastric wall, but to difference in the opening or closure of the pylorus. This somewhat corresponds with my own observations, published last year, on the influence of various chemical bodies on the gastric mucosa. To the entire mucosa were applied various chemical bodies—acids, alkalies, varieties of food, such as bouillon, peptones, starch—and they did not seem to influence the peristaltic motions a particle; but as soon as tension was brought to bear on the muscle wall of the stomach by distending the stomach with air or water, introduced directly, or indirectly in a rubber bag inserted in the stomach, it promptly caused rhythmical contractions—peristaltic waves. The degree of tension or intermittent tension, within limits, increased these peristaltic waves proportionally. By prolonged and excessive tension, lasting several hours, the gastric muscle of the dog became fatigued and resulted in dilatation of the stomach. I also observed, as Dr. Cannon has done, the influence of acid on the mucosa of the stomach and duodenum, causing the opening and closing of the pyloric door; and this work that Dr. Cannon has brought out in another direction not only confirms my observation of the negative effect of chemical stimulation or excitation of stomach movements, but goes further and gives an explanation of the manner in which the pyloric door is opened. Does this, then, conflict with the popular theoretical idea that excessive acid in the stomach causes spasm and a closure of the pylorus, as is held by clinicians? I am impressed more with the physical and mechanical effect of the stomach contents in causing rhythmical contractions, which necessarily includes relaxation as well as contraction. The acidity may be an incident indirectly influencing the passage of food through the pylorus.

Dr. Claude A. Smith, Atlanta, Ga.—Has Dr. Cannon made any observations on the effect of exercise on the passage of these different foods from the stomach?

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[10] Serdjukow: Reviewed in Hermann's Jahrsbericht über die Fortschritte der Physiologie, 1899, viii, p. 214.

[11] Lintwarew: Biochemisches Centralblatt, 1903, i, p. 96.

[12] Oser: Zeitschift für klin. Medicin, 1892, xx, p. 285.

[13] Dolinsky: Archives des sciences biologique de St. Pétersbourg, 1895, iii, p. 399.

[14] Moore and Rockwood: Journal of Physiology, 1897, xxi, p. 373.

Dr. W. B. Cannon—In order to find the reason for gluten leaving the stomach early and in large amounts, just as carbohydrates do, I took equal amounts of gluten paste and of the proteid (meat proteid) which I had been using, and put into each the same amount of 0.4 per cent. hydrochloric acid. In about thirty minutes the free hydrochloric acid had entirely disappeared from the meat, but the free hydrochloric acid was still present in the gluten paste twenty hours after being introduced. Evidently this gluten does not readily unite with the acid; so that, if acid is poured out on the gluten in the stomach, free acid must be present immediately, just as it is in the case of carbohydrates. I used Dr. Johnson's gluten, and I understand that a large amount of starch is present in it. The figures I have presented do not show the amount of food in the stomach. The figures show the amount of food in the small intestine. The stomach may be empty while food is still present in the small intestine. It is true, as Dr. Turck has suggested, that I have seen no considerable variation in the peristalsis. Gastric peristalsis runs regularly from the beginning to the end of digestion unless stopped by emotional disturbances. I have not examined the effect of exercise, but one of my students is at the present time at work on the effect of exercise and other factors.

THE DIAGNOSIS OF ENLARGED BRONCHIAL LYMPH NODES.*

ALFRED FRIEDLANDER, M.D.,
CINCINNATI.

Among the phenomena of the developmental period of childhood, there is none more striking perhaps, than the activity for the lymphatic system. The lymph glands constitute an apparatus for filtration. Given the factors of rapid growth, on the one hand, and of poorly developed powers of resistance, on the other, and it can readily be seen that the period of childhood must necessarily be accompanied by marked reactive irritation and inflammation of the entire glandular system. During this period the mucous membranes are prone to irritation, with resulting inflammation. Added to this, there is the disposition, often hereditary, not infrequently aggravated by faulty conditions of development and hygiene, to chronic inflammation of mucous membrane, skin and bone. Under such conditions it is not surprising that the filter system should be taxed to its utmost capacity—hardly less astonishing that we should find very often, in the inability of this system to hold the various poisons localized—an avenue for general systemic infection.

From the nature of things we should expect to find inflammation of the tracheobronchial glands to be enormously common. The three groups of these glands—the tracheal, the tracheobronchial and the peribronchial intercommunicate freely. They receive the lymphatics of the trachea, the bronchi and the lungs and the pleuræ. But, more than this, through the deep lymphatics of the neck, lying both in front of and behind the carotid sheath, they are in direct communication with the cervical glands. Again, these glands are directly connected with the mesenteric lymph nodes.

It will thus be apparent that very many different factors and very diverse conditions may induce inflammation of these glands. Of these factors there are many that are particularly frequent in childhood. Diseases of the nasopharynx and irritation of the bronchial mucosa are excessively common. Indeed, if we consider the morbidity of but two diseases, which invariably cause a good deal of irritation of the bronchial mucosa and thus of the bronchial glands, namely, measles and pertussis, the frequency of the condition can not be doubted.

SIMPLE ADENITIS.

Simple adenitis of these glands is very frequently only the precursor of the far more serious tubercular involvement. There is no need to quote many figures as to the frequency of such tubercular infection. As long ago as 1865 Steiner and Neuritter showed that in 302 autopsies in tuberculous children, the bronchial lymph nodes were affected 275 times (91 per cent.). And the oft-quoted figures of Northrup, who found the nodes tubercular in every case, in a series of 125 autopsies, irrespective of the cause of death, hardly need comment. It is not only true that tubercular bronchial adenitis is present in at least four-fifths of all cases of tuberculosis in children, but—and this is the more important—it is certain that in the majority of these cases, it is the primary lesion.

There can be no doubt that many cases of enlarged bronchial glands tend to recovery, without subsequent tubercular infection. The danger of such infection, however, is always present, and it is, after all, this factor which adds so greatly to the gravity of the condition.

If we consider that the morbidity of measles is probably greater than that of any other infectious disease; if we add to this the enormous frequency of pertussis, influenza and of such forms of irritation as adenoid vegetations, the statement that almost every child, at some time or other, exhibits a bronchial adenitis, does not seem exaggerated. Of course, in many cases, such a simple adenitis recedes with the disappearance of its cause. With the subsidence of the special infection, the strong and otherwise healthy child recovers, and is to all intents perfectly well again. Yet every adenitis of this sort is but a preparation of the soil whereon, under proper condition of diminished vitality and lowered bodily resistance, the ubiquitous tubercle bacillus may grow and flourish. And other things being equal, the longer such adenitis persists, the greater the danger of tubercular infiltration.

TUBERCULAR ADENITIS.

Yet, even though it be admitted that tubercular disease of these glands is enormously common, it is not to be forgotten that this form of tuberculosis—so long as it remains localized—is still decidedly amenable to treatment. Indeed, tuberculosis, in infancy and childhood, is essentially a disease of lymphatic structures. It may remain so localized for months and years, gradually progressing to other and more incurable forms. There is, it is true, the ever-present danger of general infection; and owing to the anatomic peculiarities, to the peculiarly intimate relation of these glands to other lymphatic systems, such infection is particularly apt to occur in the form under consideration, namely, enlargement of the bronchial glands. A recent writer insists on "the predominating influence of the tracheobronchial glands, as compared with any other lymph glands, in the origination of tubercular processes elsewhere in the body."

DIAGNOSIS OF ENLARGED BRONCHIAL GLANDS.

From the viewpoint of prophylaxis, as well as of direct therapy, it is thus very desirable that we should be able to make a definite diagnosis of enlargement

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The percentage of lymphocytes is here practically normal, although the eosinophile count is very high—without new demonstrable cause for the eosinophilia. Indeed a subsequent count showed normal proportions of eosinophiles. Without exception, in all of the cases studied, there has been the distinct picture of lymphocytosis—usually very well marked—when the clinical condition allowed a diagnosis of enlarged bronchial glands to be made.

In this connection it may be permissible to refer to the figures of a count, previously reported, of a case of so-called pertussoid, following influenza, in an infant of 8 months. In this case the percentage of lymphocytes was 69.6 per cent. the polymorphonuclears numbering only 30 per cent of the whites. A certain degree of lymphocytosis is, of course, to be expected in infancy, but figures reported in this case are certainly suggestive.

The number of cases studied (10) is not large enough to warrant the drawing of any absolute conclusions. Nevertheless, the fact that each of these cases showed a lymphocytosis, stands out prominently. And its significance is enhanced by the fact that in the cases which could be followed up, the lymphocytosis disappeared, to a degree, with the subsidence of the symptoms.

It is indeed not unreasonable to expect that, where there is marked irritation or inflammation of the lymph glands—we should see a reactive lymphocytosis. The best illustration of this we see in lymphatic leukemia. But this is not an isolated example. Thus in typhoid there is relative lymphocytosis, and as we know, marked inflammation of the mesenteric lymph glands. Again, in the early stages of syphilis, with acute adenitis, lymphocytosis is the rule. On the other hand, we know that all forms of adenitis are not accompanied by lymphocytosis. In Hodgkin's disease, for instance, lymphocytosis is only occasionally found. So, too, in the adenitis accompanying malignant disease there is ordinarily no lymphocytosis.

With reference to the blood find in general tuberculosis it may be said that, except for a reduction in hemoglobin, there are no important blood changes—unless there be secondary infection. As Cabot says, "whether or not tuberculosis of the abdominal or other internal lymph glands affects the blood, I am unable to say."

CONCLUSIONS.

In the absence of more extended series of observations than the present one, too much theorizing is certainly out of place. Yet it seems fair to emphasize the fact that in two diseases where we know clinically that a tracheobronchial adenitis exists, namely, pertussis and measles, there is a constant lymphocytosis. And in the 10 cases of enlarged bronchial glands studied, lymphocytosis was found in every case. In the light of these cases it seems fair to assume that the lymphocytosis of pertussis and measles is to be explained by the irritation of the tracheobronchial gland.

If after further investigation and after study of a much larger series of cases, the observation of constant lymphocytosis be confirmed, we shall have an additional sign—and I believe a valuable one—looking to the more definite diagnosis, and, therefore, to the more successful treatment of the condition of enlarged bronchial glands.

22 West Seventh Street.

DISCUSSION.

Dr. R. B. Gilbert, Louisville, considers that the situation of these bronchial glands at the bifurcation, and against the posterior wall of the trachea, renders them, when they are enlarged, a potent source of irritation. They are enlarged more or less in every case of bronchopneumonia, and especially in measles. The method followed by Dr. Gilbert in cases of persistent cough following measles, and which ordinary cough remedies fail to relieve, is to give full doses of potassium iodid, and if the cough is due to the irritation caused by enlarged bronchial lymph nodes, it will frequently be rapidly relieved by the administration of this remedy. These conditions are most likely to be met in persons with a syphilitic or scrofulo-tubercular diathesis.

Dr. George N. Jack, Depew, N. Y., said that it seems strange to him that such an ancient disease as asthma, as well as other common respiratory conditions, should be attributed to a spasmodic contraction of the air tubes, as the anatomist has clearly demonstrated that it is absolutely impossible for one of these tubes to contract. Therefore, the condition must be due to direct obstruction. The bronchial lymphatic glands are the dumping grounds of the blood. The blood passes through them and rids itself of its impurities. If, then, the blood is loaded with waste and useless material while in the lungs for oxygenation and purification, it will naturally deposit as much as possible of this useless substance in the bronchial lymphatic glands. The blood, stool, urine and clinical history of the patient must be our chief guides in diagnosis.

Dr. Theron W. Kilmer, New York City, is of the opinion that the bridge of tissue sometimes formed after the removal of adenoids as the result of adhesions, and which gives the same symptoms as the adenoids themselves, should be broken down with the finger, a month after the adenectomy. He has never observed pseudo-pertussis or pertussoid forms of cough and is inclined to look on them as myths. He has never found bronchial lymph nodes during life. Even if the diagnosis is made, he knows of no efficacious treatment to promote their reduction.

Dr. Louis J. Lautenbach, Philadelphia, emphasized the fact that peculiar malformations of the bony structure of the palate are often associated with these obstructions in the posterior nares. This peculiar condition of the bony structure may escape attention unless it is looked for. He also referred to the frequent occurrence of deafness resulting from nasal disease, catarrhal deafness being practically always so caused. In cases where adenoids are said to recur after removal it is often not a true recurrence, but a new growth brought about by the same underlying conditions which produced the first enlargement.

Dr. Alfred Friedlander said that it is perhaps going a little too far to assert that the coughs Dr. Gilbert referred to are always due to adenoids. He has seen many improve without removal of the adenoids, and thinks that when there is tracheobronchial adenitis a primary localized tuberculosis is present and it is surprising that more of these cases do not develop a generalized tuberculosis. He considered it our duty to treat these cases precisely as we would treat a localized tuberculosis elsewhere. Even when there is only a suspicion of such a condition, the patient should be given the benefit of the doubt and treated accordingly. The importance of removing adenoids in children is appreciated, but too much stress should not be laid on this one factor alone. It has become the rule to ascribe all the ills of children to adenoids, but it is a fair assumption that sometimes the illnesses are not due to this condition.

Domestic Opium.—In his annual report Secretary Wilson of the Department of Agriculture states that opium poppies have been grown successfully in Vermont, both the white-seeded and the blue-seeded varieties yielding good crops. Experiments are now being carried on to ascertain the possibility of obtaining morphin directly from the plant. If the experiments prove successful, the American product may replace the oriental opium as a source of morphin.

THE IMPORTANCE OF AN EARLY AURAL EXAMINATION IN ACUTE DISEASES OF CHILDREN.*

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The prominence of aural disease has been brought very frequently before the profession for the past decade; but I know of nothing in aural disease of children of greater importance than an early recognition and treatment of some of the conditions I shall enumerate.

It is more particularly to call your attention to certain forms of aural disease, especially in children, not easily recognized by the pediatrist or general practitioner, and therefore all the more important, or if recognized, usually too late to be of value from a prophylactic standpoint, that this paper is written.

You are all familiar with the complications frequently accompanying the acute exanthemata, but usually your first intimation of an aural condition is to have the little patient complain of earache, or if it be a young infant, you expect him to pull or tug at the affected ear, and cry out with pain, thus drawing your attention to the local condition. That such manifestations do take place in a certain number of cases, there can be no gainsaying; but this number is small in comparison with the number of cases that never complain, nor give the slightest evidence of any ear trouble being present until a discharge is noticed coming from the external auditory canal.

It is of these cases that I wish to speak more in detail, and of how important it is that frequent otoscopic examinations be made that we may early recognize and treat any pathologic conditions found, and thus prevent the patient from undergoing a long and dangerous sickness that might be caused directly or indirectly by such an aural condition.

TECHNIC OF EXAMINATION.

Otoscopic examination in very young children is by no means an easy matter to those not constantly practicing it; in the first place, the specula used are too large; secondly, the auricle is drawn upward, backward and outward, and in this way the major portion of the lumen of the canal is shut off from our view—whereas if we draw the auricle gently downward and backward, we open the canal and expose to view the deeper structures.

Then, too, we will oftentimes find the circumference of the meatus lined with cerumen, and if we attempt to force the speculum beyond this, we not only hurt the patient, but our view is obstructed by a speculum, the distal end of which is filled with wax. In these cases it is always well to syringe the canal with warm, sterile water, and remove the obstructing cerumen before we attempt a further examination.

CONDITIONS OF TYMPANIC MEMBRANE.

In many cases, on inspecting the drum membrane, when middle ear disease is suspected, we see a white, rather prominent looking drum, showing not the slightest vestige of congestion, but if we here bring to our aid a cotton tipped probe, and gently brush the surface of the drum membrane with it, the white looking drum will be replaced by a bulging, reddened and angry looking surface, which shows the true condition of the middle ear. The pressure behind the drum having been so great as to cause a rapid exfoliation of the external epithelial layer; and this on inspection can easily be mistaken for a drum membrane free from involvement.

Such an error is made again and again, and then when pus suddenly appears in the canal a few hours after the examination, the observer is surprised at such a rapid infection, and wonders how so large an accumulation of fluid or pus can form in such a short time, when in reality it was present all the time.

Another picture, the otoscope examination reveals in cases complicating the exanthemata, is that of the upper half of the drum membrane looking normal save for a slight tinge of congestion along the superior border of Shrapnell's membrane, while the lower half, and particularly that portion of the drum corresponding to the tubal opening in the middle ear looks lustreless; and has a grayish, mottled appearance. This shows that already the mucous membrane of the tube and that portion around the tubal entrance is swollen and pouring forth a serous exudate which demands an immediate evacuation through an opening in the drum if we wish to cut short the process, and prevent the disease from attacking structures higher up.

Another picture frequently seen, and when present usually accompanied by severe earache, is that of a drum membrane showing decided congestion of the whole upper third; the lower two-thirds retaining its lustre; neither bulging nor fullness is present, but the superior and posterior portion of the membranous canal is intensely reddened; the excessive pain being no doubt due to the involvement of this connective tissue fold in the membranous canal.

Here early incision is advisable, even before bulging takes place in order that we may prevent extensive attic involvement.

AURAL COMPLICATIONS OF THE EXANTHEMATA.

In young children suffering from the acute exanthemata, it is, I believe, just as important that their ears should be examined each day, as it is that they should be seen for their general condition, for, after all, the mortality is quite as large in these diseases from the aural complications as from any other; and many of the cases of deaf mutes, as well as the legion of chronic purulent ears with their sequelæ might be avoided if in the future this precaution were taken. The usual time for an aural condition to develop, complicating these acute diseases, is any time after the third day, and it is all the more important that these aural examinations be made frequently, for in a large number of the cases, there is no symptom pointing to an aural condition until after the damage has occurred, namely, a spontaneous rupture with destruction of a portion of the drum membrane, which might easily have been avoided, had otoscopy been practiced frequently.

When the general practitioner or pediatrist is treating any of the acute inflammatory diseases, and the disease is subsiding, and the existing temperature is high and out of all proportion to that stage of the disease, it is wise to perform otoscopy, as in many of these cases here will be found the cause of the temperature, and a speedy relief from anxiety will follow as the fever drops when the ear is appropriately treated.

AURAL COMPLICATIONS IN OTHER DISEASES.

Gastrointestinal Diseases.—This condition occurs frequently in diseases other than the exanthemata; as for example, complicating an acute gastrointestinal condition, where the local symptoms are fast disappearing and yet the child is fretful, uneasy, and the temperature remains high. All other conditions excluded, if the are examined quite frequently, the cause for the child's latent symptoms is found here. Again, take a patient convalescing from pneumonia or the "grippe," when the temperature varies and remains high, and the physician for several days can not locate the cause of the existing fever, but thinks it is a latent "grippe" or an incomplete or delayed resolution, or that that much maligned disease, malaria, is at work on the patient's system again—if when such conditions present themselves, the ears be examined carefully many times, here will be found the cause of the disturbance, when, before examination, it was not even suspected.

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Follicular Tonsillitis.—It is also advisable that frequent examinations of the ear be practiced during an attack of acute follicular tonsillitis, though here pain is usually a prominent symptom in children owing to the fact that there is usually lymphoid hypertrophy present in the naso-pharynx, and the swelling existing here causes pressure on the eustachian tubes, and the pain is at once referred to the ear.

A prophylactic measure of the greatest importance in young children, is to see that all adenoid tissue be removed before the winter months, as the presence of this tissue is very often the exciting cause of an acute middle ear suppuration, and very frequently such a suppuration will not cease until the exciting cause, namely, the adenoids, has been removed. It is then often astonishing to see how rapidly resolution will take place without any local treatment whatever directed to the , after this source of irritation has been removed; or if it does not clear up quickly the treatment necessary to bring about a favorable result will occupy a much shorter period of time.

Hypertrophied Tonsils.—Hypertrophied tonsils should also be sacrificed when there is a history of frequent attacks of ear trouble in children, as enlargement in this region causes engorgement around the orifice of the eustachian tubes, and this is an exciting factor, even though somewhat remote from the seat of the disease.

Coryza.—Another condition in children requiring toscopic examination is when an acute coryza is pres , for here, with the frequent and forcible blowing of the nose, bacteria-laden mucus is often forced into the opening of the tube, with the result that an acute condition of the middle ear is speedily established, and frequent examinations reveal to us the disease in its very earliest stages, thus enabling us to check the process without impairment of audition or any of the unpleasant sequelæ coincident with middle ear suppuration.

Nasopharyngeal Catarrh.—In many cases of mild sopharyngeal catarrh, where all the symptoms are ractically absent, save temperature, if the ear be examined here will be found the cause of this temperature, for toscopy will show us acute middle ear changes taking place and this condition is not infrequently found where no adjacent local manifestations are present, not even a imple cold.

Typhoid.—Another disease, and one often overlooked, where otoscopic examinations are necessary, is typhoid fever; for here the aural complications when they do exist, if overlooked, leave the audition permanently impaired. There is rarely a symptom present in this disease to call one's attention to the ear, and many a case of labyrinthine disease owes its origin to an attack of typhoid fever.

Mastoiditis.—One of the complications of acute middle ear suppuration in young children, mastoiditis, may, think, be appropriately mentioned here, as in the minds of many practitioners, such a complication does not exist unless the ear is found to be displaced forward, and a swelling of more or less magnitude, with edema, is found over the mastoid.

Given a case of acute middle ear suppuration following any one of the many diseases which it may complicate, and this disease having subsided, we have a running ear to treat, with one other symptom present, namely, temperature. This temperature is usually not high, but varies from 99 to 100.5, continuing for several days with morning remissions and evening exacerbations, without any apparent change in the character of the secretion coming from the ear, except a slight diminution in quantity. We find also on cleansing the external auditory canal, and wiping away the secretion from the point of perforation in the drum membrane that pus oozes through this opening drop by drop as we wipe it away. In such a condition as this, delay is extremely dangerous, for there is already an infiltration of pus throughout the mastoid structure and an operation for mastoiditis here is imperative, for if allowed to progress, in a few days the case will present the gross physical signs described above.

It is very difficult, and frequently impossible, to elicit the slightest evidence of pain in young children when we press on the mastoid process, even though the mastoid be filled with pus, for these little patients will scream quite as much when the normal side is being examined, as they do when the diseased side is gone over; and if one waits for the appearance of edema over the mastoid, as an indication for operation in these young children, he is increasing the danger tenfold by inviting one or more of the complications to take place.

Another fallacy in connection with this phase of aural complications, is, that when a swelling takes place behind the ear in young children, and there is a subperiosteal accumulation of pus present, that it is quite sufficient to make an incision, the so-called Wilde's, in the soft parts over the swelling, evacuate the pus, pack it, and believe nature will do the rest. A condition like this treated in such a way almost invariably leads the patient into danger from the complications arising thereafter, to say nothing of the permanent impairment of the hearing, for a chronic aural discharge will be the result of such treatment.

Abundant clinical evidence has been brought to bear on this point, from all modern otologists, and the importance of opening the mastoid, and draining the middle ear in these cases has, in my experience, been amply demonstrated during the past two years. In a large hospital service, 57 cases of subperiosteal abscess were present in young children ranging from 5 weeks to 6½ years of age; in all of these the mastoid was opened and the middle ear drained posteriorly, and 56 of the mastoids contained pus. In the one in which pus was not present, granulation tissue was found throughout, and the structure was just on the point of breaking down.

In these cases do not be content with a simple incision and evacuation, for if this only be done a dangerous legacy is left these little patients, and one to which unfortunately, all too many succumb. Even though in many cases the external evidences have disappeared, the ear still continues to discharge, because it has not been properly drained, and this discharge is the result of the mastoid necrosis, which is still progressing, and sooner or later he who is treating such a case is brought to face a still more serious condition, namely, that of one or more of the frequent intracranial complications of otitic origin.

Another serious complication of acute aural suppuration which is by no means infrequent in young children, is that of a primary involvement of the jugular bulb, without disease of any of the mastoid structure. Here the principal symptom is mainly one of temperature, which ranges all the way from normal to 107 F. The rises are rapid and the remissions to normal or near it, quite as abrupt. In adults, we usually associate such a condition with more or less well defined symptoms, the principal one, aside from the temperature, being the presence of a chill or chilly sensation. In young children, we hardly ever observe this symptom, but in the place of it the little patients have cold hands and feet preceding the rise in temperature. These with a discharging ear may be the only symptoms present for several days, until the child gradually becomes septic. When the observer suddenly awakens to this fact, it is usually too late to save the life of his patient.

The question may be asked, "How can a primary involvment of the jugular bulb take place, without first involving the mastoid structure?"

It can take place very easily under the following conditions:

With an active, virulent infection of the middle ear cavity, and the presence of a large irregularly shaped bulb encroaching on it, and these two spaces separated by only a thin, parchment-like wall of bone, it becomes a very easy matter for the infection to pass through this thin plate of bone, and poison the blood current, before such infection would have time to travel its usual pathway, namely: Through the mastoid structure. That such a complication is not infrequent, can be readily comprehended, when in my experience alone, five such cases have been encountered during the past six months. The successful treatment of this condition is an early operative procedure.

Eczema of the External Auditory Canal.—Another condition where an otoscopic examination is indicated is where we find an eczema present of the external auditory canal and meatus, and sometimes extending over nearly the whole auricle, and down the side of the face. This condition is caused in nearly all the cases by a scanty serous discharge coming from the middle ear, and this moisture lies in the canal until an exfoliation of the superficial epithelial layer takes place, and the little patient's first symptom is an intense itching at the meatus, accompanied by a very natural desire to scratch, which is indulged in with the result that in a very short space of time, a well-developed eczematous area is present. Even though this complication be treated faithfully and conscientiously, it will recur from time to time, because the etiologic factor in its production has not been discovered, namely, the scanty acrid discharge from the middle ear. Had an examination of the ear been made on the appearance of the eczema, these little sufferers might have been spared weeks of pain and annoyance, instead of enduring the torture they are allowed to undergo.

A rather infrequent complication of this eczematous state in young children is the appearance of a diffuse circumscribed external otitis or furuncle, caused by scratching the meatus. When this condition is present and well developed, it many times is mistaken for mastoiditis, owing to the large amount of swelling which is present over and around the mastoid process. An aural examination will always clear this up and the true cause be discovered in the external auditory canal and meatus.

CONCLUSION.

I would in no sense be understood as always advocating the calling in of an aurist for the making of these frequent examinations, but in each case, when the general practitioner or specialist in children's diseases is first called to examine the case, the physical examination is an incomplete one unless the ears are included. It is a simple matter for those not accustomed to perform otoscopy, by a little practice, to be able to do it well enough for all practical purposes.

To the general practitioner of the future will belong the credit of a decrease in the number of cases of chronic purulent ear disease with their sequelæ, for if recognized and treated early, an acute condition need never reach the chronic stage. If, however, a chronic ear disease be encountered, no time should be lost in an attempt to rectify the pathologic condition, so that the patient may retain his audition; and also to prevent the possibility of an intracranial condition occurring later.

62 West Fifty-second Street.

DISCUSSION.

DR. HERMAN JARECKY, New York City, stated that the routine examination of every child suffering from an acute condition should always include a careful inspection of the ear. Recently Dr. Kerley was called to see a child that was being treated for empyema. On examination, Dr. Kerley found that the case was one of acute middle ear disease. Dr. Jarecky saw the patient on the following day and did a paracentesis: the temperature dropped to normal and all the symptoms of the supposed empyema disappeared. Dr. Jarecky said that, in the adult, a view of the drum membrane is obtained by pulling the auricle upward and backward, in infants it must be drawn downward and backward, and in older children simply backward.

Acute middle ear disease during the acute exanthemata is particularly liable to affect children who are suffering from adenoids, because the drainage is imperfect. In typhoid fever the ear complication is probably frequently overlooked on account of the general apathetic condition. In every case in which the ears are involved with bulging of the drum membrane, paracentesis should be done without delay. The simple operation can be done by the general practitioner as well as by the specialist. The ear should be properly irrigated with bichlorid solution or peroxid, and the drum membrane incised. In cases in which the posterior part of the wall is involved, we should not wait for bulging before incising the drum membrane.

DR. SAMUEL J. WALKER, Chicago, emphasized the necessity for examination of the ear in acute infectious diseases in children, and that middle ear disease may simulate almost any disease of childhood, such as meningitis, typhoid fever or pneumonia. He was called recently to see a child three years of age that was seemingly very ill. The child's father was a physician and had made a diagnosis of probable pneumonia. The patient was carefully examined, but Dr. Walker was unable to find any objective sign of pneumonia. On the following day the child's father was inclined to believe that the case was one of typhoid fever, but this diagnosis was practically excluded by the result of a blood count, which showed a leucocytosis of 28,000. On this second day the chest finding was still negative, so that pneumonia could probably be excluded. An ear specialist was called in, examined both ears, and pronounced them practically normal. The child, however, continued to show severe symptoms of acute infection. On the third day the ear man again saw the patient. At this time he found some redness and bulging of the membrane in both ears. Paracentesis was performed and there was a free discharge of pus followed by a rapid subsidence of all symptoms.

DR. SAMUEL MCC. HAMILL, Philadelphia, said that in his wards at the hospital, three out of seven cases of typhoid fever developed a complicating otitis media. In the majority of instances of this kind that he has seen the diagnosis was not made until the drum membrane had ruptured spontaneously. Most of these cases were in children, and in the majority of instances with which he has come in contact the complication has occurred almost at the point of defervescence in the course of the typhoid fever.

Dr. Theron W. Kilmer, New York City, asked Dr. McKernon if he advocates paracentesis in every case of bulging of the drum. Dr. Kilmer has seen the inflammation disappear in these cases under the use of douches of hot boracic acid solution, and without incision.

Dr. Louis Fischer, New York City, has found the temperature in suppurative conditions of the middle ear a rather uncertain guide. A child with scarlet fever, while progressing satisfactorily, is suddenly "restless during the night:" the temperature is 99; pulse, 120. The next day there is a discharge from the ear. Excluding the restlessness there is sometimes no indication of a suppurative process going on. He has come to look on the temperature as a not very positive symptom in acute suppurative otitis, especially during the infectious diseases. Many cases of suppuration of the middle ear are the result of mechanical infection through the nose and eustachian tubes by irrigation, etc. He believes that if we leave the nose alone, and do not irrigate, as is so frequently done in the acute infectious diseases, there will be fewer cases of acute otitis media.

Dr. S. W. S. Toms, Nyack, N. Y., emphasized the possibility of nasal cleansing setting up middle ear disease. About two years ago he saw a child with a purulent rhinitis, and made an effort to cleanse the nose by irrigations. The following morning the child developed a temperature of 104, and he found the left ear drum bulging. The temperature rose to 107 within three hours, and the child was in a desperate condition, the pulse being 186 and the respirations 84. An aural specialist was called in, who incised the left ear drum, evacuating no pus, but some bloody serum. The drum of the opposite ear was apparently perfectly normal. The child's general condition decidedly improved after the paracentesis, but the temperature did not drop more than one degree. The respirations and pulse also remained high. Dr. Toms frequently examined the right ear drum during the night, and the next morning found that it distinctly bulged. The otologist was again sent for and incised the membrane, evacuating a little bloody serum. Within three hours after this second paracentesis the temperature dropped to 100, and the child's further recovery was uneventful. Since this case, Dr. Toms has carried a head-mirror and speculum with him, and to examine the ears as a routine measure in case of acute disease in a child.

Dr. Thomas S. Southworth, New York City, said that in the acute infectious diseases, a number of patients will develop middle ear trouble, whether the nose is irrigated or not. He thinks that if the irrigation is done carefully and as much as possible of the septic material in the naso-pharynx is removed, the number of cases of complicating ear disease ill be decreased rather than increased. The aurist sees only the irrigated cases which develop otitis, but he does not see the larger number saved from otitis by irrigation. Of course, the irrigations should be made very gently, preferably by fluid poured into the nose from a spoon.

Dr. F. L. Smith, Bridgeport, Conn., said that it has often been very difficult for him to decide just what to do and when to operate. Not long ago he saw a patient who complained of an earache. He examined the drum membrane, and from its appearance did not suspect any serious middle ear trouble. During the night the drum ruptured spontaneously, and there was a purulent discharge from the ear.

Dr. Charles G. Kerley, New York City, said that he gave his experience with 51 cases in a paper at the recent meeting of the American Pediatric Society in Detroit. In 34 there was no pain nor other local manifestation of ear involvement. The only symptom indicating the middle ear as the seat of the trouble was the elevation of temperature. In the treatment of children it is just as important to make a careful examination of the ear as of the heart or lungs.

Dr. J. F. McKernon agreed with Dr. Walker that middle ear disease may simulate almost any disease in the category. In typhoid fever the ear symptoms are most commonly observed during the stage of defervescence. If typhoid patients could have the ears examined systematically after the first week, Dr. McKernon believes that we could often prevent serious middle ear trouble, with resulting labyrinthine disease, and the dry catarrhal form, in which the prognosis is so absolutely bad as a sequela of typhoid fever.

Dr. McKernon said that he would incise the drum membrane in every case if it were bulging, and in a certain number of cases he would even make the incision when the bulging was absent, depending on the physical signs and symptoms presenting. He disagreed with Dr. Fischer in regard to the temperature in middle ear disease. There are a certain number of cases where there is no temperature at the time we see the patients; these patients may have had a temperature before we saw them, or may be patients who are more or less resistant to temperature changes, but in the vast majority of cases the temperature is one of the predominating features throughout. In streptococcus infection the temperature is usually high and continuous until the pus is evacuated, whereas in the mixed infection with the pneumococcus the temperature is not so high. In staphylococcus infection the temperature is not very high. In adults the temperature is not so predominating a factor as in children. He has not used a douche in the nose nor nasopharynx for ten years. If the child is old enough, he holds its head sideways, and allows the fluid to run through gently. If there is much secretion in the nose it can be wiped out with a cotton-tipped probe. He never uses the douche nor spray, and disapproves of their use in diphtheria or scarlet fever. In the acute middle ear diseases in children, the presence of pus is not always necessary. There may be infected serum just as well as pus, and the former calls for evacuation quite as much as the latter. It is well known that many of these cases apparently recover without surgical interference, but a large proportion will show evidences of pronounced impairment of hearing in future years.

SOME PHYSICAL SIGNS IN INFANTS AND CHILDREN NOT SUFFICIENTLY EMPHASIZED.*

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AND
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Several years ago we began a systematic examination of the heart and lungs of infants and children in our out-patient services in the Howard and Polyclinic Hospitals, with a view to confirming certain observations which we had made, some of which had not been sufficiently emphasized in the literature, and others of which were at variance with the results reported.

CONDITIONS IN THE LUNGS.

Our observations relate exclusively to normal or functional conditions. In relation to the lungs, they are three in number: First, an area of impaired resonance under the left clavicle. Second, the area of transmission of the bronchial type of breathing as heard over the root of the lung. Third, the influence of position on the percussion note in infants.

An Area of Impaired Resonance Under the Left Clavicle.—This sign was first noted accidentally by one of us in a child convalescent from bronchopneumonia. In this instance, owing to the absence of all other signs of pulmonary consolidation it was interpreted as probably indicating enlargement of some of the lymphatic glands. In the study of subsequent cases of bronchopneumonia, this same area of impaired resonance was observed and found to persist until the patients passed from under observation. The constancy of its presence led us to search for it in the chests of infants and children free from pulmonary diseases. These studies, which have extended over a period of two years, have convinced us that this is a normal manifestation, constantly present up to the age of nine or ten years, and not infrequently as late as the thirteenth year. The degree of impairment varies in different individuals. It is difficult to elicit in early infancy. It is always present under the inner third of the clavicle. It occasionally extends outward to the midclavicular line, gradually fading as this point is approached; it extends in a downward direction to the first interspace and not infrequently blends into the cardiac dullness.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Unfortunately, we are not able to give an entirely satisfactory explanation for its presence. In a few postmortem studies, which we have made with the idea of elucidating this point, the only feature noted, which may have some bearing on its production, was the exposed condition of the great vessels. The left lung in early life lies more posteriorly than in the adult. The anterior border, in not extending so far forward, leaves the great vessels, as it does the heart, in more intimate contact with the chest wall, which naturally results in producing a higher pitched note over the portion of the chest immediately overlying. This probably does not account for the instances in which the impairment extends as far to the left as the midclavicular line, unless it be that the relatively extensive area of contact with the solid organs—the great vessels and heart—reduces the elasticity of the chest wall sufficiently to partially deaden the pulmonic resonance for a limited distance beyond the point of contact with these solid organs.

The importance of this observation is manifest. We have been taught, heretofore, that if there is any difference in percussion resonance over the apices, it is somewhat higher over the right. On the basis of this teaching, one would naturally look on an area of impaired resonance under the left clavicle as indicating some abnormality of the lungs, great vessels or lymphatic glands. It also has an important bearing on the determination of the upper area of cardiac dullness. In many instances, as stated, it blends into it, and in these, renders impossible its definite delimitation.

The Area of Transmission of the Bronchial Type of Breathing.—This is ordinarily heard over the root of the lungs, and varies greatly in different children. Posteriorly, it is usually limited to the interscapular space and supraspinous fossæ. It is often conveyed to the entire scapular area and it can sometimes be heard just above and in front of the angle of the scapula, about in the posterior axillary line—as a high-pitched, distant, bronchial murmur, which is sometimes so misleading that we have seen it mistaken for the bronchial breathing of consolidation. When heard here, it is usually bilateral, assuming that the child is examined in a position which renders breathing equal on the two sides. It is much more common in children under six years of age, although we have noted it after this period. Dr. D. L. Edsall tells us that he has sometimes noted the same thing in the examination of the adult chest, as well as in that of the child.

The Influence of Position on the Percussion Note in Infants.—It has been indefinitely stated in text-books, that placing a child on pillows or even in contact with the ordinary mattress, will, to some extent, deaden the sound produced by percussion of the chest. We have not, however, seen emphasized in the literature the striking differences on the two sides of the infant's chest, when it is examined lying on its side with the dependent lateral surface of the chest wall in intimate contact with the bedding—an incorrrect position which is commonly employed in the examination of the chest. Under these circumstances, the elasticity of the chest wall is destroyed, the lung is compressed, air enters it inadequately and, in consequence, there results a striking increase in the height of the pitch of the percussion note, which, when compared with the note on the opposite side, proves very misleading, unless one determines its origin by examining the infant with both sides of the chest free and symmetrical.

THE HEART.

In the study of the heart, we have considered: First, the position of the apex beat. Second, the outlines of the heart. Third, the venous hum. Fourth, the functional murmur. These subjects have been much under discussion and the opinions regarding them are much at variance.

The Apex Beat.—In studying the position of the apex beat, we have examined the children in the upright position, recording as the apex the point farthest to the left and lowest down, at which it was impossible for us to obtain any cardiac impulse. We found that the area formerly described as representing the apex beat, namely, the point of maximum intensity of the impulse, was so variable in its position and frequently so far removed from the left border of cardiac dullness, as to give a very definite idea of the position of the point of the heart. There is considerable variation in the position of the apex, as we have determined it, but it is much less than the variation of the point of maximum impulse.

We have always believed that the point of the heart remains in the fourth space and near to the midclavicular line for a longer period than is ordinarily supposed, and that after descending from the fourth to the fifth space, it almost constantly finds itself in the midclavicular line and occasionally outside of it; the approach to the normal position of the adult being made on a horizontal plane from this point. The results of our work have confirmed these views.

In a series of seventy-one infants under three years of age, examined in our dispensary services, we found the apex beat in the fourth space fifty-seven times. In seventeen of these it was just without the midclavicular line; in three, one-half inch without; in twenty-five, in the midclavicular line, and in twelve just within the midclavicular line. In fourteen cases, it was in the fifth space, just within the midclavicular line four times; one-half inch without the midclavicular line three times; just without once, and in the midclavicular line six times.

In a series of thirty-six cases, studied during the fourth and fifth years, the apex was in the fourth space twenty times; just without twice; in the midclavicular line seven times; and just within the midclavicular line eleven times. It was found in the fifth space thirteen times—once without the midclavicular line; eight times in the midclavicular line; three times just within, and once one-half inch within the midclavicular line. Three times it was apparently behind the fifth rib in the midclavicular line. Up to the end of the fifth year, therefore, the apex is found much more frequently in the fourth space than in the fifth space. During the following year, however, there comes a very abrupt change.

Thus, in thirty cases, it was found in the fourth space but eight times—once one-half inch outside the midclavicular line; twice in the midclavicular line; four times just within the midclavicular line, and once one-half inch within. It was noted twenty-two times in the fifth space—appearing twice one-half inch without the midclavicular line, eight times in the midclavicular line. six times just within the midclavicular line, and six times one-half inch within the midclavicular line.

In one hundred and thirty-eight cases, studied from the sixth to the twelfth year, it was noted but thirty-three times in the fourth space—most frequently in the midclavicular line, (eighteen times in the midclavicular line, seven times just within the midclavicular line, eight times one-half inch within the midclavicular line). In the remaining one hundred and five cases it was found in the fifth space—and again most frequently in the midclavicular line, namely, thirty-six times; twenty-eight times it was just within the midclavicular line, twenty-two times one-half inch within and nine times (during the eleventh and twelfth years) one inch within the midclavicular line.

It is worthy of note that, in none of the eleven cases observed in the twelfth year, was the apex beat found in the fourth space.

As the result of the examination of these two hundred and seventy-five cases, therefore. it may be concluded that, up to the sixth year, the apex beat is ound much more commonly in the fourth intercostal ace and in the midclavicular line and that, after this eriod, it is usually in the fifth space, in or just within e midclavicular line. Occasionally, however, it conues to beat in the fourth space even up to the elfth year.

Area of Cardiac Dullness.—With reference to deterning the outline of the normal heart, we have examd a series of one hundred and ninety-one cases. The ients have been examined almost entirely in the ight position. In infants under one year of age, the imbent posture was maintained because we found the results of outlining the heart with them in upright position was extremely unsatisfactory. Inr as we were able to compare the results in the positions, at this period of life, they were not very rent. The hands were used for both plexor and meter and the percussion stroke was made exely light—an absolute necessity in the outlining ese hearts, if one desires to obtain accurate re-

Probably the term accurate is not appropriately ed to the outlining of the heart of infants and ren. We do not agree with those who believe it is easier to outline the heart in children than ults. In the first place, the heart lies freer in est in early than in adult life, and consequently, re readily displaced. Aside from this, infants hildren are much more liable to extreme distenf the abdomen, which, in pushing up the agm, tends to push the heart upward and to the nd, what is probably still more important, the ely greater size of the liver and its frequent enents. give rise to an area of impaired resonance right of the sternum, which it is often impossible rentiate from the right border of cardiac dullness. We have endeavored, insofar as possible, to eliminate cases in which these conditions might have interfered with our results, but, notwithstanding these precautions, we submit our conclusions with a certain amount of trepidation. We are quite willing to adopt the words of Clifford Allbutt, in relation to this subject, which are as follows: "The facility with which modern physicians delineate and record the varying dimensions of the heart excites my admiration—a skill I can not hope to attain; the conditions of physical diagnosis seem to me indeed to be too inconstant for such appraisements."

In fifty-one cases, examined during the first three years of life, the upper border corresponded to the second rib thirty-four times, to the second space ten times, and to the upper edge of the third rib seven times. The right border was at the midsternum twenty-nine times, at its right edge fourteen times, and at its left edge eight times. The left border was in the midclavicular line sixteen times, just without twenty-one times, and one-half inch without fourteen times.

During the fourth, fifth and sixth years, in forty-one cases, the upper border corresponded to the second rib ten times, to the second space eleven times, and to the upper border of the third rib twenty times.

The right border extended to the left edge of the sternum once, to the mid sternum twenty-four times, to the right edge of the sternum fourteen times, and one-half inch beyond its right edge twice.

The left border extended one-half inch without the midclavicular line three times, just without sixteen times, and was in the midclavicular line twenty-two times.

During the seventh, eighth and ninth years, in fifty-five cases observed, the upper border was over the second rib eight times, the second space thirteen times, and the upper border of the third rib thirty-four times.

The right border corresponded to the left edge of the sternum five times, to the mid sternum twenty-two times, to its right edge twenty-three times, and was one-half inch beyond its right edge five times.

The left border was found one-half inch outside the midclavicular line fifteen times, in the midclavicular line thirty-six times and just within four times.

During the tenth, eleventh and twelfth years, in forty-three cases studied, the upper border corresponded to the second rib five times, to the second space eleven times, to the third rib twenty-seven times.

The right border was over the left edge of the sternum twice, over the mid sternum twenty-seven times, the right edge eleven times, just beyond the right edge once, and in two instances one-half inch beyond.

The left border was seven times one-half inch outside the midclavicular line, seven times just without the midclavicular line, twenty-nine times in the midclavicular line.

In the light of the above figures we conclude that the average outline of the heart for children under three years of age is as follows: Upper border, second rib; right border, mid sternum; left border, just without the midclavicular line.

From the third to the sixth year: Upper border, the upper border of the third rib: right border. mid sternum; left border, in or just without the midclavicular line.

From the sixth to the twelfth year: Upper border, third rib; right border, from the mid sternum to the right edge of the sternum; left border, most commonly in the midclavicular line.

The two remaining points to be considered, the venous hum and functional murmur, are of much more importance than the determination of the cardiac outline.

The communications in the text-books on these subjects are very scant. A considerable number have been contributed to the literature in the form of theses and essays, and in these one finds a very remarkable and inexplicable diversity of opinion as to the frequency, etiology, nature, time, distribution, and significance of these murmurs. Only a few observers admit that they are present, except with the greatest rarity, during the first four years of life; for instance, such a careful observer as Hochsinger[1] makes the statement that "during the first three years, systolic murmurs heard over the precordia are certainly of organic origin."

It is for the purpose of refuting statements such as these and with a view to elucidating some of the points above referred to, that we have made a careful, systematic study of a large number of children. We have examined children of all ages up to the twelfth year. We have accepted the general run of dispensary cases, excluding all febrile cases, those having deformities of the chest and those in whom the heart's action was abnormally rapid. We have not, in these cases, made systematic examinations of the blood. Where anemia was manifest on observation, it was recorded in our notes. The majority of our patients were asthenic children, with a degree of anemia, not manifest in the appearance. We recognize the unreliability of this method of excluding anemia, and it is very probable, that in many, and perhaps the majority of our cases, there may have been a slight degree present. But we do not believe that the anemia was the main factor in the production of the murmurs. We have noted marked anemias without murmurs and found them present in patients with a normal hemoglobin percentage. We are much more inclined to believe that these murmurs bear a closer relationship to the general nervous tone of the individual, which extends itself to the nervous mechanism controlling the condition of tone of the heart and vessels—conditions which may be secondary to any of the infectious or nutritional disturbances. What the possibilities of a diminution in the bulk of blood in children of this type are, we do not attempt to determine. If the defective conditions of hygiene under which they exist can yield such a result, it is possible that this may have some etiologic significance.

The Venous Hum.—In the study of the venous hum, we have made it essential that the hum should be present when the patient was examined with the head fixed in the median line. Turning the head away from the side under examination will always augment the murmurs and sometimes produce them where they had not previously existed. We have used a double stethoscope, with a chest piece three-quarters of an inch in diameter, and in its application used only sufficient pressure to bring its circumference in complete contact with the underlying surface. We have examined all of our patients in both the upright and recumbent postures.

In the two hundred and twenty-six cases in which we studied the venous hum, twenty-four occurred during the first three years of life, four of these being in the first twelve months. Following this, the number of cases was about the same in each year. In all but thirty-six, the hum was best heard over the right jugular vein. In the thirty-six in which this was not so it was best heard over the left. It was heard alone on the right side sixty-four times and alone on the left twelve times. In eighty-nine cases it was heard over both the right and left, being best heard in the right side seventy-seven times and in the left twelve. In thirty-eight instances the distribution was more extensive, the following being the most common: Over the right jugular, the intensity being greatest at this point, under the right clavicle, in the suprasternal notch, over the manubrium sterni and over the left jugular. Occasionally it was heard only over the right jugular and under the right clavicle. In several instances, the murmur was distinctly audible along the right edge of the sternum as low as the second costal cartilage, and in two instances, we heard it over the second left costal cartilage.

The murmur, as heard over the right jugular, was continuous in the vast majority of cases, having its *maximum intensity during the systolic period.* There was usually some reduction in the loudness of the sound during the end of systole with some augmentation in volume during diastole. In but six of these two hundred and twenty-six cases was the hum audible in systole alone, and in no instance did we hear it alone in diastole.

The influence of posture on the sound was striking. In only ten instances was the murmur audible when the patient was recumbent and in all of these it was much louder when the upright position was assumed.

The presence of this murmur over the manubrium sterni has interested us, in its relation to Eustace Smith's sign of enlargement of the bronchial glands. While the murmur disappeared in these cases when the patient was recumbent, it was again produced if the head was extended and sometimes when there was no hum present over the manubrium sterni in the upright position, it could be induced by having the head fully extended when the child was recumbent. The frequency of this phenomenon in cases in which there was an entire absence of other signs of enlargement of the glands, has led us to place very little reliance on this sign.

The extensive area of distribution of the venous hum may result in its being mistaken for murmurs at the base of the heart, or possibly for murmurs produced by lesions of the vessels. As has been noted in several instances, the murmur was audible as low as the aortic area and in two instances we have observed it in the pulmonary area. It is quite true that in all of these, if the patient was examined in the upright position, the murmur had the peculiar, humming, continuous sound which is characteristic of the venous hum, but in several instances, when the patient was placed in the recumbent posture, there persisted during systole a faint systolic whiff, which might readily have been mistaken for a murmur produced by lesions of the aortic or pulmonary orifice, or more probably, for a functional cardiac murmur. In the sub-joined study of inorganic heart murmurs we have noted a murmur, systolic in time, in the aortic area, which we believe to have been produced in this manner.

Functional Heart Murmurs.—We have studied these murmurs in two hundred and sixty-seven cases. Of this number, twenty-three occurred during the first three years of life (of these twenty-three, four having been noted during the first year, nine during the second and the remainder during the third). The figures during the remaining years are as follows:

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[1] Allgemein. Wein. Med. Zeit., 1888.

4th year	20	9th year	27
5th year	19	10th year	32
6th year	36	11th year	23
7th year	35	12th year	13
8th year	39		

These figures probably do not indicate the relative frequency of these murmurs at the various ages indicated, for the reason that, in our dispensary service, the number of children treated between the ages of three and ten years is relatively greater than the number treated during the first two or the eleventh and twelfth year. Aside from this, the difficulties attendant on the satisfactory examination of infants in a large dispensary service are too great to make the recognition of faint murmurs possible.

The murmur was best heard, in the majority of instances, in the pulmonary area—in one hundred and eighty of our cases. The next point of maximum intensity was over the body of the heart, in the space between the third rib, the left edge of the sternum and a point within and above the apex beat. This applied to forty-five cases. In twenty-six, the murmur was best heard at a point slightly above and just within the apex. It was sometimes transmitted slightly beyond the apex beat and infrequently as far posterior as the mid-axillary line. In sixty-one of our cases, it was audible only in the pulmonary area; on the other hand, the area of distribution, in some instances, was very extensive. It was not an uncommon experience to find the murmur audible in the pulmonary area, over the body of the heart, at and beyond the mitral area, and, in twelve instances, in the aortic area.

In the vast majority of cases, the murmur was inaudible in the upright position and, in only four, was it heard in the upright position and not in the recumbent. In two hundred and ten cases, it was audible in the recumbent posture only, while in fifty-one, it was audible in both the recumbent and upright.

To determine how definitely the foregoing studies illustrated the frequency of these murmurs in children under three years of age, through the courtesy of Dr. J. R. Bryan, we were enabled to examine a series of cases in St. Vincent's Home. The result of this work is so interesting that, in order to emphasize it, we tabulate it and give it separate consideration.

It includes a series of thirty-four cases—nineteen of them being one year old or under, seven of them between one and two years and the remaining eight between two and three years. The hemoglobin was estimated in all of these children. We did not make a complete blood examination, believing that the percentage of hemoglobin would prove a sufficiently satisfactory indicator of the degree of anemia. Of the nineteen under one year of age, twelve were foundlings and seven were breast fed children. These two groups are contrasted because they illustrate so well the effects of the natural and artificial modes of nourishment.

Among the twelve foundlings we found a venous hum present four times (in each instance it was heard only during systole), and functional murmurs seven times. The character and distribution of these murmurs was much the same as in the cases previously referred to and therefore need not be described in detail. In one instance, the venous hum was present without functional murmurs, and in four instances the functional murmur existed without the venous hum. The percentages of hemoglobin, in the cases indicated, were as follows: 50, 60, 70 twice, 74, 76, 77 and 90. In the instance in which the hemoglobin was 90 per cent., both the hum and the murmur were present. One case

TABLE 1.

CHILDREN UNDER ONE YEAR.

	FOUNDLINGS.												BREAST FED.						
Number of Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Age	4½m.	2m.	2¼m.	2wks.	9½m.	4¼m	6m.	1 yr.	1 yr.	2wks.	5wks.	1m.	14m	3m.	5m.	2m.	6m.	7m.	2m.
Venous Hum . . Distribution	. . .	. . .	.	R	R L	. . .	R R C	. . .	. . .	. . .	. . .	R	. . .	.	. .	. .	. .	. .	. .
Venous Hum . . . . . Posture	. .	. . .	. . .	U	U	. . .	U	. . .	. . .	.	. . .	U	. .	. .	. .	. .	. .	. .	. .
Venous Hum . . . . . Time of	. . .	. . .	. . .	S	S	. . .	S	. . .	. . .	. . .	. . .	S	. .	. .	. .	. .	. .	. .	. .
Functional Murmur . Time of	. .	LS	LS	LS	3 Sp	. . .	LS	. . .	LS	. . .	LS	. . .	LS	.	. .	. .	. .	. .	. .
Functional Murmur . . Distr.	. . .	2 Sp BH M	3 Sp	inM BH P	P P	. . .	P 3 Sp M	. . .	M BH P A	. . .	P BH	. . .	P 3Sp	. .	. .	. .	. .	. .	. .
Functional Murmur . . Posture	. . .	R	R	R	R	. .	R	. . .	R	. . .	R U	. . .	R U	. .	. .	. .	. .	. .	. .
Anemia . . . . per cent.	65	50	60	70	90	88	76	92	77	94	70	74	61	71	70	80	83	83	80

TABLE 2.

CHILDREN OVER ONE YEAR.

Number of Case	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Age	16m.	18m.	19m.	20m.	2	2	2	2½	2½	2½	2½	2¾	2½	3	3½
Venous Hum . . Distribution	. . .	. . .	R L	R	R	R R C SN L	R	R L	R LC RC	. .	R RC L	R RC LC SN	I R	R L	R R RC
Venous Hum . . . . . Posture	. . .	. . .	U	U	U	U	U	U	. .	. .	. .	U	U	U R	U
Venous Hum . . . . . Time of	. . .	. . .	S D	S D	S D	S D	S D	S D	. .	. .	. .	S D	S	S D	S D
Functional Murmur . Time of	LS	. . .	LS	LS	LS	LS	. .	LS	LS	LS	LS	LS	LS	LS	LS
Functional Murmur . . Distr.	3 Sp P LES	. . .	3 Sp LES M	3 Sp	P	P B H 1/20 M	. .	P B H M	P 4Sp	P	3Sp	4Sp	P	3Sp	3Sp P
Functional Murmur . . Posture	R	. . .	R	R U	R U	R	. .	U	R U	R	R U	U R	U	R U	R U
Anemia . . . . per cent.	80	75	75	85	88	90	78	70	55	92	75	60	100	55	. .

EXPLANATION OF ABBREVIATIONS.

In relation to posture "R" means recumbent and "U" upright. The upper letter in the column indicates the point of maximum intensity of the sound.
Distribution of Venous Hum: R.—Right side. L.—Left side. R. Cl. and L. Cl.—Under right and left clavicles. S. N.—Supersternal notch. M.—Manubrium.
Distribution of Functional Murmur: P.—Pulmonary Area, left interspace close to the sternum. M.—Mitral area. A.—Aortic area. B. H.—Body of heart (the portions of the heart not described under valve areas). 3 Sp.—Third left interspace within the parasternal line.
The time of the murmur is indicated by the abbreviations: S.—Systolic. D.—Diastolic. L. S.—Late systolic.

showed a hemoglobin percentage of 65 per cent. without either hum or murmur. The youngest child included in this series was two weeks of age, and in this case, both the hum and the murmur were noted. Four of the others were under six months of age. In the seven breast fed children there were no venous hums present. One child, who had recently passed through a severe attack of measles, had a functional murmur. This child had a hemoglobin percentage of 61. The hemoglobin estimates in the remaining cases were 70, 71, 80 twice and 83 twice.

The point which we desire specially to emphasize in this comparison, is the fact that, in the breast fed children, although in two instances the hemoglobin percentage was as low as in the children showing murmurs in the other set, there were no murmurs present. On casual observation, the condition of nutrition of some of the foundlings seemed quite as good as that of some of the breast fed children. On closer inspection, however, the former were seen to be more apathetic, their muscles more flabby and their general tone much lower. These differences in the condition of tone were striking. The mild anemias were about the same in the two sets; therefore, we are inclined to believe that the murmurs recognized were not dependent on the associated anemia, but rather on the differences in nutrition.

In the fifteen children over one year of age, the venous hum was found eleven times and the functional murmur thirteen times, and in two instances, the murmur was present without the hum. The venous hum, in these cases, with one exception, was continuous and in this one instance it was heard only during systole.

The hemoglobin percentage varied from 55 to 100 and, in the instance in which it was 100, both the venous hum and functional murmur were heard.

These observations are not in accord with the investigations which have been made. As intimated in the beginning of our paper, functional murmurs are almost universally stated to be absent under three years of age. One exception to this statement appears in a communication by Rheiner.[2] He says that he believes that functional murmurs, though unusual, do exist before the second half of the fourth year and that he has heard soft, inconstant murmurs in the pulmonic and mitral areas in apparently healthy infants in the first year of life, for which he has found no satisfactory explanation.

In reference to this subject, Holt[3] makes the statement that "accidental murmurs may be due to anemia and other blood conditions and, although not so common as in older patients, they are by no means rare even in infants."

W. L. Johnson[4] makes the statement that he has "seen two cases of febrile murmurs in young infants."

With these exceptions, we have found no reference to their existence except as very unusual manifestations prior to the third year.

DISCUSSION.

Dr. John Lovett Morse, Boston, has tried to obtain information regarding the size of the heart in children, and has not been able to find anything satisfactory. According to his experience, the right border of the heart in infants up to two years of age is from one to two centimeters to the right of the right border of the sternum. Functional murmurs are very common in infants, and he believes that in many cases a murmur can be heard at the upper part of the sternum if the head is held backward.

Dr. Louis C. Ager, Brooklyn, N. Y., asked whether the heart of the young infant is usually displaced much to the left in intestinal dilatation. His experience has been that it is crowded directly upward, but not much to the left.

Dr. R. B. Gilbert, Louisville, said that there ought to be a book on anatomy giving the structures of the various organs in young children. The various text-books on this subject are wholly misleading, and on that account he believes that we have all experienced difficulty in mapping out the heart in cases of suspected cardiac affections in infants. The same is true in regard to the caliber of the bronchial tubes, and there are a number of anatomic points bearing on diagnosis which show distinct variations in the child as compared with those in the adult.

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[2] Correspondenz-Blatt f. Schweitzer Aertze, December, 1903, p. 769.

[3] Text-book on Diseases of Children, second edition, 1903.

[4] St. Louis Courier of Medicine, December, 1903, p. 383.

CONGENITAL DISLOCATION OF THE HIP.

AN ARGUMENT CONCERNING THE METHOD OF ITS TREATMENT.*

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SAN FRANCISCO.

There is a line of argument concerning the method of treatment of congenital dislocation of the hip, which is to-day being forgotten. I desire to review it because it opposes the reduction of the dislocation by any kind of forcible manipulation, and perhaps will tell against manipulation where but moderate force is used.

In 1899 I reported, at the New York meeting of the American Orthopedic Association, thirteen manipulative reductions; of these one is an anatomic and functional success, one is probably an anterior subluxation because of interposed capsule between the head and acetabulum, one was an anatomic success, but became ankylosed after an exploratory incision and consequent infection. Two of these have been verified by very recent, or comparatively recent, examination. The ankylosed one has passed from observation. There is nothing to add to the statement then made of the failures to maintain reduction in the other cases.

The previous year, 1898, at the Denver session of the American Medical Association, I reported, as part of a general report on the work I had been able to do, the case of a girl, 6 years old, with both hips out, on whom the manipulation plan apparently succeeded, but really failed. A second attempt again apparently succeeded on one hip and again really failed, and on the other hip the failure was a frank one. In this case I finally did arthrotomy and found that, in the joint in which the second attempt had apparently succeeded but had really failed, the interposed capsule, and the impossibility of putting the head through the narrow part in the capsule, was the cause of the failure; in the other joint the same obstacle existed and the capsule was full of bloody synovia, showing that the manipulations had been forcible and fairly well directed. Both hips were reduced by arthrotomy and the child left the hospital with each *in situ*, but her condition and whereabouts are not now known.

Since this operation, which was done in 1898, I have made no attempts, save one, at manipulative reduction, but have, instead, done the operation by arthrotomy in all instances.

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* Read at the meeting of the American Orthopedic Association, Atlantic City, 1904.

As regards the manipulative method, I am sure that Lorenz told the whole truth when he stated that the obstacle to reduction was the narrowed part of the capsule just at the posterior and superior or superior part of the acetabular rim. If the opening, at this narrowed part, is big enough to permit the head to pass, reduction can be accomplished by manipulation, and may be maintained if the acetabulum is deep enough. I have in two instances done this, I know. In the 28 cases in which I have done arthrotomy, and in which I have explored the narrow part of the capsule by my finger, and so know its size and the strength of its walls, there has been but one case in which the passage of the head would have been possible. I am not too dogmatic when I say that no possible force could have put the femoral heads through the narrow part of the capsule in any of the other cases. One possibility, and 27 impossibilities!

Now what happens when attempts are made to accomplish this impossibility? Lorenz has reported plenty of fractures of the femur and one each of the pubis and of the ilium, and other operators have done the same.[1] Lorenz reports seven cases of paralysis out of 400 odd operations, but Taylor,[2] looking carefully for the condition, finds eleven cases in less than fifty operations, by various operators, including, I believe, Lorenz himself. While Taylor states that most of these cases recover, the uncertainty of the result is patent to all who have had the misfortune to injure a few major peripheral nerves. It certainly is an accident that can not be disregarded. My own contribution to the casualty list is the report of a case of Lorenz's own, of rupture of the capsule of the hip joint, distal to the constriction, and the thrusting of the femoral head out among the muscles of the thigh. While only one case was shown to have had this accident, still, from the similarity of the clinical conditions, I believe another had it, and it is not in the least impossible or improbable that it occurs in very many cases, especially in the class called "anterior transposition." Finally, on all sides one finds the absurdity of the term "bloodless" pointed out, and the reference to the lacerations of muscles, the extravasations of blood and hematomas. And last of all, Lorenz has reported one case of gangrene of the whole lower extremity.

These accidents must make any one who is not an enthusiast, or a special pleader, stop and think. One
must say th stify the exposure to such risks the
percentage , anatomic and functional, must
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hundred are perhaps to be considered fortunate if they get nothing.

In all seriousness I declare that the percentage of successes is not enough to warrant the risk, and I claim that the percentage of successes is not enough to justify the method apart from the risk. I am perfectly ready to subscribe to the satisfaction, for all parties, parents, patient and surgeon, which comes from a perfect anatomic and functional result, for I have experienced that satisfaction. But I deny that there can be any special satisfaction in the "anterior transposition," the result that has to be dubbed "good" in quotation marks, the result that still leaves a short limb and a limp, the result that in its failure may only suggest the quotation from Bret Harte, "He done his level best," as an excuse for the surgeon.

Ridlon quotes the earlier statistics of the operation for carcinoma of the breast, an ultimate mortality of 90 per cent. to excuse the 90 per cent. of failures to get anatomic results in congenital dislocations. But the 90 per cent. ultimate mortality in carcinoma of the breast was not satisfactory to surgeons, and methods had to be devised to lessen it. That they have been devised is shown by Kocher, who now quotes 42 per cent. of the cases sound three years after operation. The same dissatisfaction belongs to the results in congenital dislocation of the hip. We are bound to improve the methods of eliminating the risks, which are too many and too great and too awful. We have got to increase the number of cases in which the head is really and honestly put into the acetabulum, the cartilage of the head in actual contact with the cartilage of the socket. We are under the obligation of improving the methods for making this actual reposition permanent. In brief, we must improve in every particular the quality of the results we offer the people in these cases.

If we, as orthopedists, read what general surgeons teach and practice concerning the treatment of traumatic dislocations we shall see that they all deprecate the use of undue violence. Manipulation must be based on the most accurate knowledge of the mechanism of dislocation, and must be restricted to reduction without adding to the trauma. To accomplish this the dislocated bone must traverse, in its return, the path it made when it was displaced. Never must it be ground through a new path. If reduction is not possible by moderate force and in a reasonable time, an incision is imperative to permit the path to be cleared, the reduction to be done and the parts to be restored to the approximate anatomic relations.

No general surgeon to-day would countenance the use of extreme force in the treatment of an old unreduced traumatic dislocation. Moderate force, if it promises success or attains it, is advised, but extreme violence or prolonged efforts are wrong. In the light which an incision lets in otherwise insuperable obstacles are cleared away. In no instance of a recent or an old dislocation would a general surgeon attempt to jam a too large bone through a too small hole, and the passage of the femoral head through the constriction of the capsule in the case of the congenital hip dislocation, he would recognize, in the great majority of cases, as an impossibility.

If we turn to fractures, the advice and practice is the same. When the inside conditions of a fracture are such that satisfactory replacement of the fragments is impossible from the outside, the general surgeon makes an incision and deals with the fragments immediately.

1904.

I do not forget that as orthopedists, we are teaching much to the general surgeon, and that we shall probably teach more; but we must be careful that we do not, in this instance, abuse his confidence and so invite him to criticize; for the general surgeon knows that the trauma of an aseptic incision is practically nothing in contrast to the injuries recited as incidental to the forcible manipulative method. The incision is less than that required for an appendectomy, less than that required for a nephrotomy, less than that required for an intra-abdominal shortening of uterine ligaments, less than that required for a herniotomy, less than that required for a lithotomy, less than the admittedly often necessary exploratory celiotomy. If the general surgeon, the world over, would not balk at this little incision, why should we? Or, if those of us who do some general, as well as some orthopedic surgery, would not shy at incisions for some objects, why should we do so for other objects?

If I am not afraid to open the knee joint to take out a floating cartilage—and I am not afraid to do this—why should I be afraid to open the hip joint to clear away the obstacle between the acetabulum and the femoral head?

I really do not believe that the definiteness of that obstacle is appreciated or else this question would not be necessary. In the case of a child who had a congenitally dislocated hip, who had never walked and who died of pneumonia sequent to measles, I secured the os innominatum and the whole of the limb. Before the child's death I had tried a manipulative reposition, using carefully regulated force, and apparently had succeeded; that is, the head went with a hop and a click to some place near the acetabulum. A week after this, however, reluxation had occurred. I then definitely reduced through an incision, and while in the splint the fatal illness supervened. The necropsy of the hip joint showed that my incisional reposition had not been permanent, the femoral head was posterior and superior to the acetabulum and the incision in the capsule had healed so perfectly that it could not be found, so that the original local conditions were restored. Now with all of the tissues removed from the bones except the capsule, and able to get a thoroughly good hold of the parts and to guide my efforts by sight, I was still unable to put the femoral head into the acetabulum. At the present time I am fairly familiar with the feeling gained by thrusting the forefinger down into the contracted capsule and then through the isthmus. Why then should we subject a large number of hips to the forcible manipulation now in vogue? Why follow an inexact and vulnerating method which gives a small percentage of anatomic reductions, when we have at hand a simple and exact surgical method which will permit the reduction to be definitely accomplished in practically all the cases that are of suitable age?

Of course if we are to save these cases, irreducible by manipulation, from the risks of forcible manipulation, we must save all, for no one can tell, *a priori,* which case is to prove reducible and which is not; and that will mean that all congenitally dislocated hips shall be reduced by arthrotomy, so that the operator knows just what he is doing, does what he wishes, and does not do what he does not wish. Moreover, it means that all hips, in the suitable ages, shall be definitely reduced, the surgeon will actually put the two parts together, and, so far as the conformation of the parts permits, they will stay in that relation. If, however, the parts are so malformed that a reposition which shall be stable is not possible, there will be a reluxation or a subluxation, possibly an anterior one. This is just as likely to occur in the arthrotomy reductions as in the manipulative reductions, and no more likely. It will be a late result, and the mechanically inevitable result of preexistent anatomic conditions; it will not be the result of an inexact and incompetent method. I much prefer to be able to say to parents that I have put their child's bones together properly, but that the bones are too misshapen to remain together, than to have to say that I could not put them into any anatomic relation whatever.

Finally, by the arthrotomy method the patient will have been saved the exposure to paralysis, which comes at the rate of from 2 to 20 per cent of the cases; will have been spared the risk of a broken leg or pelvis; will not have had the contusion and lacerations of the muscles about the hip which result in ecchymoses and hematomas and possible gangrene; and will have been exposed only to the one danger of sepsis, the possibility of which should not be greater than, nor as great, as it is in clean appendectomies.

I do not see what is gained for the children by the present method of forcible manipulation except for that small proportion, 10 per cent., that gets the anatomic and functional perf[illegible]; and this result could be gained more easily [illegible]isk by the arthrotomy method, so that the [illegible]er cent. is not its at least, of chemical combinations, and how to intelligently combine drugs in order to obtain the best results without forming dangerous compounds.

PRESCRIPTIONS CONTAINING PHARMACEUTIC INCOMPATIBILITIES.

This heading is of particular importance to the pharmacist, as it is his duty to dispense as elegant and palatable preparations as possible.

As in the first group, only those prescriptions were classified which were particularly objectionable or unsightly in appearance, nauseating in taste or difficult to dispense as ordered. We obtained ten from the one store and three from the other. It has been frequently said that if a physician had to take some of the "potions" that he orders, there would be a radical change in modern prescription writing.

Every medical school should give a complete course in prescription dispensing in the pharmaceutic laboratory, as this knowledge would be of inestimable value not only in framing elegant combinations, but would be of especial service to the country practitioner who is compelled to compound his own medicine.

PRESCRIPTIONS CONTAINING THERAPEUTIC INCOMPATIBILITIES.

Only one prescription was found that was particularly antagonistic from a therapeutic standpoint, and this shows that the average medical student is more thoroughly trained in therapeutics than he is in pharmacology.

PRESCRIPTIONS CONTAINING SIX OR MORE INGREDIENTS.

Thirty-four in the one series and sixteen in the other contained six or more ingredients, and it was a noticeable fact that the majority of these prescriptions were written by a certain few physicians who had drifted into polypharmacy. It is pleasing to note that this tendency is gradually dying out, and we hope that the day is not far distant when the old "shotgun" prescriptions, of from twelve to fifty ingredients, will be framed as curiosities of by-gone days.

Another noteworthy fact is that these prescriptions are mostly written by the very old practitioners. If this improvement had only occurred years ago, homeopathy would not have gained its present foothold; then, again, the system of prescribing as used in our best hospitals is so designed as to use only single drugs or preparations, and to make these as elegant and palatable as possible—a good step in the right direction.

PRESCRIPTIONS CONTAINING FROM TWO TO FIVE INGREDIENTS.

This constitutes the great majority, almost three-fourths, of the prescriptions, and shows a great improvement over the prescription of a century ago, when it was the popular belief that the greater the number of ingredients the greater the chance of cure. This rule would apply where ignorance in diagnosis exists, as by this theory the greater the number of ingredients present the more likelihood of administering something that will be of service. A good example of this is the old Warburg's tincture; the original formula as directed by Dr. Warburg contained the old *"confectio damocratis."* This was a complex astringent confection containing opium, and originally had sixty-four ingredients, many of the constituents being unobtainable at the present day.

PRESCRIPTIONS CONTAINING ONE DRUG OR PREPARATION.

It is pleasing to state that the greater number of these prescriptions were written by our most able practitioners, men who are prominent in medical teaching, and while they do not represent quite one-fourth of the total number, this is not a bad showing.

PRESCRIPTIONS CONTAINING ONLY OFFICIAL PREPARATIONS.

Approximately one-half belonged to this group, and it will be noted the very slight variation in this respect in the two series. This is likewise encouraging, and may the day be not far distant when the number will be increased still more. A point of interest observed here was that the more educated the physician the greater the use of the United States Pharmacopeia.

PRESCRIPTIONS CONTAINING PROPRIETARY PREPARATIONS IN WHOLE OR PART.

One hundred and ninety-five of the one series and 164 of the other, about 36 per cent., contained proprietary preparations, or, in other words, more than one in three prescriptions.

This is a good showing, when we consider that the manufacturing chemists employ persuasive salesmen, who visit every physician's office at stated periods and present him with a liberal supply of their "ideal" preparations, which are always "superior to any other made," and which are usually combined by a "peculiar" chemical process that enhances their therapeutic activity.

PRESCRIPTIONS CONTAINING PATENT MEDICINES.

Only two of the prescriptions were for patent medicines, and one of these was written by an "osteopath," so that we are only responsible for one, and this was one too many. How any regularly qualified practitioner of medicine could so disgrace himself and his profession as to order patent medicines is beyond my comprehension.

PRESCRIPTIONS IN WHICH THE METRIC SYSTEM WAS EMPLOYED.

Only three of the one series and two of the other demonstrate the fact that the metric system is but little employed at the present time, and its use does not materially increase, as my own experience in the retail drug business for a number of years corroborates. One fact is observed, when a practitioner uses the metric system, he uses it exclusively. It is to be regretted that the profession does not adopt this system and use it exclusively, as it is simpler, more scientific and in every way preferable to our present system of weights and measures. The leading medical schools give their students a thorough training in this system, and teach them how to convert the various denominations into the English system, and vice versa, but after leaving the college halls this is all thrown aside.

PRESCRIPTIONS CONTAINING NON-OFFICIAL PREPARATIONS IN WHOLE OR PART.

In this group are classified prescriptions containing commonly used preparations which are not recognized by the United States Pharmacopeia, but which can be prepared by any pharmacist, such as elixir of iron, quinin and strychnin. In this group we have sixty in the one series and ninety-five in the other, showing considerable variation, a noteworthy feature being that the series that yielded a large number, thirty-four, of the polypharmacy type of prescription, yielded the small number, sixty, of this type, while the other series that yielded sixteen of the former yielded ninety-five of the latter. A proportionate comparison.

NUMBER OF PRESCRIPTIONS WRITTEN CORRECTLY.

The criticisms in prescription writing applied to the endings used in designating the drugs or preparations and the use of the proper official names as embodied in the inscription, and the proper phraseology as applicable to the subscription. As a rule, the prescriptions of the teaching class of practitioners were correctly written to a great extent, while those of some of the regular practitioners were carelessly written, and those of others showed a marked defect in the knowledge of prescription writing. This was especially noticeable among the prescriptions of the more recent graduates. Less than two-thirds were correctly written, and this is largely due to the deficient training in this important subject in the average medical school. Several of the prescriptions were written by a young practitioner who received the highest average among 400 men at a recent examination of the state medical board, yet every one of his prescriptions showed errors in writing and in combining drugs. This merely shows that his training was deficient in this important subject.

IMPORTANCE OF PROPER TRAINING IN THIS BRANCH OF MEDICINE.

Now, who is responsible for this deficiency? Is it the teacher, the means at his command and time allotted for teaching the subject, or the student, that is at fault? The teacher is often a physician, who has never received any practical pharmaceutic training other than the "smattering course" that he received as a medical student, and, as a rule, on account of limited training and lack of interest, he follows the same rut as his predecessor; as a consequence, the pharmaceutic laboratory is deficient in its equipment and very unattractive.

Because of these facts, officers and trustees consider this branch of medicine unimportant, and the student, not realizing the value of a pharmaceutic training, completes the course ignorant of its many valuable points, and usually not until he reaches the senior year and commences to prescribe does he fully realize his deficiency in the knowledge of the mode of preparation, appearance, administration and effects of combining drugs, the very ammunition he is to use in firing his gun of knowledge to combat disease. It is not, however, until as a physician, authorized to use blank and pencil, and brought face to face with the patient, that he most seriously and keenly feels the sting of his pharmaceutic ignorance; tries to formulate a palatable mixture and fails, expects to find a nice clear solution when he calls, only to find one with an unsightly and often dangerous precipitate. It is now after repeated failures that the horizon is filled with attractive-looking proprietary preparations, and these are substituted for the official drugs, because the label states that they are specific for the disease under consideration. As a result, this habit once established is continued through life.

Three of the above prescriptions were written by "osteopaths" and they all showed utter ignorance of the first principles of prescription writing. This should be a warning to us, because, if osteopaths should receive recognition in the various states they will attempt to prescribe medicines and to treat all diseases, not limiting themselves to their own particular methods. The medical profession should be aroused to this matter and take action before it is too late. In the past few months several scathing editorials have appeared in the daily press relative to the large number of incompetent practitioners who are turned out by our medical schools, and the state board suggests an investigation of the present methods of teaching and the adoption of a more comprehensive curriculum.

However, in looking over the examination results of the various state boards as compiled in the Aug. 13, 1904, number of THE JOURNAL of the American Medical Association, we find that the percentages of failures from the Philadelphia medical schools vary from none to 8.6 per cent. for the year 1903, and this was the most satisfactory showing of any state in the series, when one considers the number of students examined.

The total number of candidates examined in the thirty-seven states was 5.027. They represented 151 American colleges, 8 Canadian institutions, and there were some representatives of foreign schools. Of the whole number examined, 4,312 passed and 715 failed. The percentage of failure was 14.2, but of the Philadelphia students but 5.48 per cent. were found wanting. This was a lower percentage than was shown by any other state or by the outsiders. The percentage of failures from New York was 7.12; of Boston, 7.28; of Chicago, 8.18; of Washington, 18.84; of Baltimore, 22.70; of Louisville, 27.67; and of St. Louis, 32.67.

Another remarkable showing is, that of the 4,312 successful candidates, 9 per cent. were from the Philadelphia schools, and only 3.2 per cent. of the 715 failures can be charged to this city. These figures demonstrate conclusively that the medical training given by the Philadelphia schools is thorough and comprehensive.

Again, at the recent examination of a state medical board the following are two of the questions asked under materia medica:

1. Name the drug of which pilocarpin is the active principle, and give the dose of the tincture that would be equivalent to 1/20 grain of pilocarpin.

In the first place, there is no official tincture of pilocarpus, and hence no recognized tincture of definite strength, and the majority of our standard medical works do not mention any strength for the tincture, and those that do show a variation in strength, so that this question is unanswerable. Books like those of Remington, Caspari, Coblentz and United States Dispensatory on pharmacy, and of Shoemaker and Potter on materia medica, do not mention any strength for the tincture, and, granted that the strength was given, the yield of alkaloid varies from 0.25 to 2 per cent. in different lots of the drug, as all the books state; therefore, how in the world can a student answer such a question?

2. Give the dose of tincture of nux vomica equivalent to 1/30 grain of its principal alkaloid, and name two official preparations into which this active principle enters.

This is a more desirable question, but even here very few students can remember the strength of the tincture as indicated in the United States Pharmacopeia, and for the second portion of the question, a number of the students gave the salts of strychnin instead of the preparations asked for. After conversing with a number of the candidates as they came from the examination room, I found that not one answered these questions correctly.

If the medical boards desire less failures, let them ask: First, questions that can be answered; and, second, questions that when answered are of some practical value, and not unanswerable and unusual questions that no one could answer intelligently, even if they had access to the text-books. The object of state examining boards is to determine the fitness of candidates to practice medicine and surgery, and this can only be done by asking practical and useful questions, that every well-

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NEUROFIBRILS.

The idea that the nerve-cell protoplasm has a fibrillary content dates back to the time of Max Schultze. Histologists were, however, in doubt about the matter until Apáthy, a Hungarian scientist, with the use of a difficult and complicated method, devised by himself, demonstrated the fibrils convincingly. The method of Apáthy, however, yielded very inconstant results, and, moreover, often failed entirely in the hands of other estigators. Beside, the method was applicable only e tissues of invertebrates, mammalian and other rtebrate tissues failing to respond to the stain. Apáthy, by his demonstrations before various anatomic societies, was nevertheless able to convince research workers in his field that the fibrils actually exist.

A search for a method which would stain the neurofibrils in human tissues was rewarded by the discovery by Bethe of a procedure which stains tolerably satisfactorily the fibrils in normal adult nerve cells. Bethe's method is also a difficult one, and one which involves the treatment of the tissues with strong reagents. It is limited further by its non-applicability to embryonic organs.

The methodology of the subject was soon further enriched by Ramón y Cajal and by Bielschowsky, each of whom invented an easy method of demonstrating the neurofibrils by silver impregnation. Each of these methods yields excellent results, and histologists have not yet fully decided as to which of the two methods is preferable. A great advantage consists in the fact that the silver methods permit of the staining of the neurofibrils at the time of their earliest appearance in embryonic tissues. The technic of the silver staining is comparatively simple, and some good work has already been done with it in researches dealing with the pathology of nerve cells.

Bethe has made some interesting observations on what he speaks of as the "primary stainability" of the neurofibrils with basic dyes like methylene blue, thionin or toluidin blue. By "primary stainability" he means the property of staining tissue in the fresh condition, or when it has been altered by dehydration only; he contrasts this primary stainability with the secondary stainability which exists after the tissue has been chemically altered, say by the action of some mordant. On staining nerve cells with methylene blue or toluidin blue, dyes which above most others exhibit neurotropic affinities, it is found that not only the tigroid masses of Nissl take the stain, but also the neurofibrils and sometimes the myelin sheath of medullated nerve fibers. In tissue dehydrated by alcohol, the myelin can be removed by treatment with xylol, and then only two substances remain which possess primary stainability. The use of toluidin blue as a staining reagent is especially to be recommended because it stains the neurofibrils metachromatically, of a different tint from that assumed by the tigroid substance.

Bethe has shown that certain reagents possess the power of destroying the primary stainability of the neurofibrils without removing the fibrils themselves from the nerve-cell protoplasm. Thus nitric acid or dilute solutions of the alkalies so change the neurofibrils that they no longer stain "primarily," though they can be stained by mordanting methods. This fact led Bethe to the idea that some substance responsible for the primary stainability of the fibrils enters into their chemical constitution normally, but can be easily split off from them. By further experimentation he found that the primary stainability of the neurofibrils can be destroyed by treatment with a dilute solution of hydrochloric acid in alcohol, though the Nissl bodies remain unchanged in their stainability by this process. The primary stainability of the latter can, however, be removed by treatment with a dilute aqueous solution of hydrochloric acid. Bethe concludes, therefore, that in each instance an acid substance, combined with the albuminous substratum, is the chemical constituent underlying the primary stainability. He therefore speaks of the "fibril acid" in one instance and of the "Nissl acid" in the other. Each acid is split from its attached albumin by hydrochloric acid; the free fibril acid is soluble in alcohol but insoluble in water; the free Nissl acid, on the contrary, is insoluble in alcohol but soluble in water. Ammonia dissolves out the Nissl acid easily, but has no effect on the fibril acid.

It is interesting that Bethe has succeeded already in obtaining small quantities of these acids in a comparatively pure state and has begun the study of their physical and chemical properties. The free fibril acid is an amorphous substance, almost colorless, of horny consistence, insoluble in water, chloroform, ether or in dilute mineral acid. It dissolves tolerably easily in alcohol, especially when the latter is acidified, and can be precipitated from alcoholic solution by sodium hydrate or potassium hydrate in the form of alkali salt. The potassium and sodium salts are very soluble in water, but the ammonia salt is insoluble in either alcohol or water.

The free fibril acid suspended in water stains intense violet in toluidin blue. The free acid does not yield the biuret reaction, and it is not yet certain whether it contains nitrogen or not. The substance must be obtained in much larger quantities than those hitherto available before more definite statements regarding its nature and chemical constitution dare be made. Bethe obtained only two centigrams of the substance from a whole kilogram of the spinal cord of the ox.

Inasmuch as the conduction of impulses by nerve fibers appears to depend on the integrity of the chemical compound on which the primary stainability of the neurofibrils depends, the extraordinary interest and importance of the fibril acid become at once apparent. Further research along these lines will be eagerly looked forward to by neurologists everywhere.

THERAPY OF EXOPHTHALMIC GOITER.

Although it is now ten years since Baumann isolated the active principle of the thyroid gland, and since Roos demonstrated that this iodin-containing body accomplished the chief functions of the thyroid, if not all of them, yet it has not to this day been settled whether thyroidin acts by neutralizing toxic products of metabolism or by furnishing some stimulus necessary for proper metabolism. Much evidence has accumulated, however, to lend support to the view that neutralization of toxic substances is an important function of the thyroid, whether its sole function or not. Of particular interest is the evidence secured through the successful treatment of exophthalmic goiter on principles suggested by the antitoxic theory of thyroid function. From the results of many experimental and clinical observations, it has been well established that the symptoms of exophthalmic goiter are largely due to a poisoning by products of thyroid metabolism, although the cause of this overproduction is still an unsolved problem. Thyroid products, therefore, although normally acting to neutralize toxic substances, are themselves toxic when not neutralized and present in sufficient quantities. If it were possible, therefore, to secure these toxic substances that the thyroid products normally neutralize, it might be possible to administer them to patients suffering from thyroid intoxication, and thus neutralize the excessive products of the thyroid. This is, of course, simply a reversal of the practice in the treatment of myxedema, in which disease the patient is presumably suffering from unneutralized products of metabolism, which can be neutralized by administering thyroid extract.

The first application of this idea to the treatment of exophthalmic goiter was probably by Ballet and Enriquez, and later independently by Lanz and by Burghart and Blumenthal. Material was secured by removing the thyroid from goats or dogs; when the blood of the animals had become saturated with toxic substances which should have been neutralized by the thyroid, and the animals were suffering from the consequent tetany or acute myxedema, they were killed and their blood secured for therapeutic purposes. Whether injected subcutaneously in the form of serum, or administered by mouth in the form of tablets of dry blood, favorable effects have been obtained by many independent and competent observers. Lanz has furthered popular use of this method of treatment by discovering that the milk of thyroidectomized goats contains the toxic materials, and as goats live for some time without their thyroids it is possible to have the patient take daily for several months one-half to one pint of such milk, with good results. As goat's milk becomes objectionable after some time, a preparation has been made by precipitating out the toxic materials and administering them in solid form; such a preparation is on the market in Germany.

The clinical course of exophthalmic goiter is so variable that one is justified in withholding an opinion as to the results of any particular method of treatment until very considerable numbers of cases have been followed for a long time. However, when clinicians of the reputation of Möbius and von Leyden go on record in favor of this method, which is furthermore founded on a scientific principle, it may be considered to be of no inconsiderable worth. Von Leyden has recently published an interesting clinical lecture on the topic,[1] in which he states that improvement is generally observed in three to four weeks, but the treatment must be followed for months and repeated at intervals according to the condition of the patient.

THE SERUM DIAGNOSIS OF TUBERCULOSIS.

While the use of the Widal reaction has become widespread in this country, and serum diagnosis has also been used to a considerable extent in dysentery and in summer complaint, its use in tuberculosis has been almost entirely neglected. Whether this is due to the technical difficulties which make this test more difficult than the Widal and allied reactions, or whether it is due to the fact that we are more apt to follow a German than a French example, is hard to say. It can not be denied, however, that in America this method of diagnosis has not been given an extended trial.

The matter was recently brought up by the originators of the test, Drs. Arloing and Courmont, at the Congress of Arts and Science in St. Louis, and a full description of the test with its drawbacks and difficulties was given.[2] As the authors point out, the sources of error may lie in the localization and evolution of the tuberculosis, or in the manner in which the cultures used for the test are developed. It is pointed out that advanced cases are the ones which most frequently do not give the reaction, and, on the other hand, very early cases, which may present no physical signs, do give it. For this reason many observers have been skeptical about the accuracy of the results reported by Arloing and Courmont, notwithstanding the fact that in a good many cases they have been able to control their clinical findings by autopsy. Then, again, in order that the test shall be a satisfactory one, it is necessary that the culture of the tubercle bacillus shall be in the form of a liquid homogeneous culture. Arloing and Courmont point out that it is quite difficult to obtain a good culture, and that some of those who have criticized their work have failed to follow closely their directions.

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[1] Medizinische Klinik, Dec. 1, 1904.

[2] Boston Med. and Surg. Jour., vol. cli, No. 23, 1904.

In order to obtain satisfactory results with their method, it is necessary, in the first place, to have a homogeneous liquid culture, grown in bouillon containing from 4 to 6 per cent. of glycerin, from a luxuriant greasy growth on potato. Such a suspension of tubercle bacilli must be tested with a standard serum which is known to agglutinate, as well as with the serum to be tested. As agglutination only occurs in relatively low dilutions, these should be used, preferably one to five, one to ten and one to fifteen. The serum to be tested should be fresh, clear and sufficient in amount, and the test should be watched for from three to five hours after it is begun. A test should never be considered positive unless the tubes show complete lutination visible to the naked eye, and showing and subsequent clarification.

ng and Courmont have followed these directions ver 400 medical cases, with the following results: Where there was a positive clinical diagnosis of tuberculosis 87.9 per cent. gave the reaction, and 12.1 per cent. did not; in hospital cases with no clinical tuberculosis 34.6 per cent. gave a positive, and 65.4 per cent. a negative reaction; in apparently well persons 26.8 per cent. gave a positive, and 73.2 per cent. a negative reaction. In a smaller number of cases of surgical tuberculosis, over 73 per cent. of the cases gave a positive reaction. The writers also found that the fluids from tuberculous inflammatory lesions have the power of agglutinating tubercle bacilli, especially the serum from cases of tuberculous pleurisy and mild cases of tuberculous peritonitis. In the case of non-tubercular effusions no agglutination takes place.

With regard to the fact already noted, that in advanced cases no reaction may occur, the authors point out the similar lack of tuberculin reaction in many advanced cases. The lack of reaction may be due to great virulence on the part of the infecting tubercle bacillus, or to a lack of resistance on the part of the individual. The latter factor seems to be the more important, as the authors state that the development of the agglutinating power seems to require well-marked resistance on the part of the infected individual. The value of the test is both diagnostic and prognostic. It is diagnostically valuable on account of the fact that it occurs in the early stages of the disease, even in people who have neither symptoms nor physical signs. It is prognostically valuable in advanced cases, where a failure of the reaction indicates a lack of resistance, and renders the prognosis grave. The test has been confirmed by a number of observers, both in France and Germany, and though there are some who deny its value, it seems well worthy of a more extended trial.

EXPERIMENTAL SYPHILIS.

Metchnikoff and Roux, followed by Lassar and Neisser, have demonstrated conclusively, by numerous and diversified experiments, that syphilis may be transmitted by inoculation to chimpanzees and other apes. It has been found that in the chimpanzee the period of inoculation varies between twenty-two and thirty-seven days; and, furthermore, that the disease may be transmitted from chimpanzee to chimpanzee. This means that it now has become possible to subject the "virus" or "contagium" of syphilis to more penetrating investigations with the view to obtain some idea of its nature, and thus pave the way for its actual demonstration.

So far, minute study of the material known to contain the infectious agent of syphilis has not yielded any information—organisms have not been found in the scrapings and juices of chancres and other lesions in either man or anthropoid. The thought naturally suggested itself that the syphilitic virus might be filterable, like the virus or organisms of bovine peripneumonia, of foot-and-mouth disease, of yellow fever, etc. But the experiments of Klingmüller and Baermann[1] and of Metchnikoff and Roux[2] show that the cause of syphilis does not pass through filters that permit the passage of the organism of peripneumonia, while small known bacteria are held back. Hence the virus of syphilis does not seem to be filterable, whatever the reason for this may be.

Metchnikoff and Roux, then, show that the syphilitic virus completely loses its virulence when heated for one hour to 51 C. On the other hand, pure glycerin seemed to have no effect on the virus. They found, further, that the heated and the filtered inactive materials did not have the power to protect chimpanzees against virulent virus. From this result and from certain other considerations, Metchnikoff and Roux were led to believe that an attenuated virulent virus, suitable for the purposes of a vaccine, might perchance be obtained from animals with a relatively slight susceptibility to syphilis.

For this purpose, extensive studies of syphilis in lower forms of apes and of monkeys seemed indicated. and Metchnikoff and Roux as well as others have accumulated quite a number of observations anent syphilis in some of the catarrhine monkeys of the Old World. These observations are as yet, however, wholly preliminary and serve for orientation. Perchance, before long indications may be secured that will point out definitely the direction along which extensive experiments must be made. Undoubtedly, the renewed interest in syphilis caused by the demonstration of its transmissibility to apes and to monkeys sooner or later will lead to more light being thrown on the many obscure questions connected with its etiology.

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[1] Deut. med. Woch., 1904, p. 766.

[2] Ann. de l'Institut Pasteur, 1903, xvii, 657.

PERITONITIS AS A COMPLICATION OF TONSILLITIS.

Peritonitis results most commonly by extension from adjacent disease, especially of the abdominal viscera. Less commonly it arises as a result of infection transmitted by way of the blood stream from some more or less remote point. The tonsils have been pointed out as possible sources of danger in this connection. The function of these glandular structures is involved in some obscurity. They are known to act as absorbents and also to take part in the production of lymphocytes. By reason of their exposed situation, they are often the seat of disease; and there is a considerable volume of evidence that they serve as portals of entry for various pathogenic micro-organisms, at times, without being themselves seriously involved. Thus there is a growing belief that the micrococcus that is supposed to be the cause of acute rheumatism gains access to the interior of the body by way of the tonsils, and it is equally probable that other infections are acquired through the same channel. A case illustrative of this view has recently been recorded by Dr. Hermann Künzel.[1] A cook, 18 years old, came under observation in an unconscious state and died in the course of three hours. Postmortem examination disclosed the existence of purulent peritonitis, no other source for which could be discovered than inflammation of both tonsils. In cultures from these, as well as from the peritoneal exudate, streptococcus pyogenes developed. In explanation of the course of events in this case it is suggested that a small amount of fluid present in the peritoneal cavity may have constituted a favorable medium for the development of the bacteria entering the circulation by way of the tonsils. In any event, these organs must be reckoned with as one of the portals of entry for a number of micro-organisms capable of causing peritonitis, and their implication in various morbid processes is, therefore, not lightly to be dismissed.

DR. FRANK P. FOSTER.

Last Saturday Dr. Frank P. Foster completed his twenty-fifth year as editor of the *New York Medical Journal*, and we wish to congratulate him on the event. During the quarter of a century vast strides have been made in medicine and in medical journalism, but Dr. Foster has always kept at the front. Always honorable, fair and square as a man, he has stood for the highest ideals in medical journalism, and has set an excellent example for other editors to follow. As far as we know, since Dr. Culbertson of the *Lancet-Clinic* and Dr. Shrady of the *Medical Record* have given up editorial work, Dr. Foster is the Nestor of medical editors in the United States. We wish him many more happy and prosperous years.

THE USE OF SALT.

The question of the dangers of food preservatives is not yet thoroughly settled. The elaborate tests by Dr. Wiley, it is reported, have left with him an unfavorable impression regarding their effects on the human digestion, but his mind is still open to conviction on the subject. One thing, however, is certain—from an economic point of view, the food resources of the world would be considerably lessened if the use of all preservative chemicals, including common salt, was discontinued. Certain French physicians have recently discussed at some length the effect of salt and the value of dechlorization in certain disorders, and it is claimed, by at least one authority, that the use of salt is generally hurtful to the human system. The amount of the substance that we really require would be obtained through our food without the process of artificial salting, he says, and the taste for salt is not innate but is acquired. It would be impossible to avoid ingesting a certain amount of chlorid of sodium in our food. It is one of the most widely distributed substances in Nature, but it seems going a little to extremes to say that a taste for it is purely an acquired one, and it is easy to conceive that the universal craving for salt, which is shared by man in common with many of the lower animals, indicates a real want, and that at times, at least, salt may be insufficiently supplied by an unseasoned diet. Like everything else, salt is liable to overuse, but this does not mean that it may not be sometimes too little used. We can not dispense with the use of salt, if only for economic reasons, and while it may be harmful in certain disorders, its usefulness to the average individual in health and to the population generally can not be questioned. It would be an interesting calculation how much the world's progress is due to salt, and how far our present civilization could really exist without this important food preservative.

THE ORIGIN OF PARASITISM.

The remarkable predilection shown by certain species of microbes for certain hosts, and the relative indifference of these parasites to other organisms, has long been the subject of zealous speculation and inquiry. Great as has been the advance in our knowledge of the underlying causes of natural immunity during the last few years, it can not be said that any final explanation is even yet in sight. It is, indeed, apparent that the ardent prosecution of studies into the germicidal and antitoxic qualities of immune sera has caused a temporary suspension of activity in other lines of investigation. The broader biologic aspects of natural immunity sometimes have been neglected. It may well happen that studies in plant pathology will be found to throw light on some of the questions of animal parasitism that have hitherto been shrouded in obscurity. For some time botanists have known much concerning the various modes by which parasitic fungi gain access to the interior of the host plant. Some enter through the stomata, some by piercing the walls of the epidermal cells or the guard cells of the stomata. Marshall Ward, in his study of the Bermuda lily disease, discovered the interesting fact that the fungus concerned (a species of *Botrytis*) effects its entrance into the host plant by secreting at the tip of the germ tube an enzyme which *softens the substance of the cell wall.* Quite recently Massee has brought out important facts concerning the influences that determine the attack of a specific host by a specific fungus. It is pointed out that while the spores of a parasitic fungus will germinate on the damp surface of the leaf of any plant, yet the germ tubes will enter the tissues and infect only the particular kind of plant on which the fungus is known to be parasitic. It is a legitimate inference from this fact that the tissues of the particular host possess a special and peculiar attraction for the parasite in question. This hypothesis has been tested experimentally, and it has been found that under certain circumstances positive chemotropism plays a prime part in inducing infection. Through the use of certain chemical substances shown to attract certain fungi, an otherwise immune host plant has been successfully infected. In other words, the entrance of a parasitic fungus into the tissues of a healthy plant depends, at least in some cases, on the presence of some positively chemotropic substance in the cells of the st. It is stated that a saprophytic fungus can be ually educated to become an active parasite for a n plant by introducing a positively chemotropic substance into the tissues of that plant. It is possible also by similar means to induce a specific parasitic fungus to invade a new host hitherto not attacked by this particular parasite. In this connection it has been pointed out that a remarkable coincidence exists between the behavior of fungus spores toward their host, and that of the pollen grains when placed on the stigmas of flowers of their own and of other species. The marked positive and negative chemotropic properties shown in the attraction of pollen tubes are apparently closely related to the similar manifestations of the germ tubes of parasitic fungi. The strict association of specific parasite and specific host may, perhaps, be explained on a similar chemotropic basis.

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[1] Münchener med. Wochenschrift, Oct. 25, 1904, p. 1920.

THE FOOD VALUE OF ALCOHOL.

The question whether alcohol is a food or not will be answered in accordance with the individual point of view, especially as to the definition of what constitutes a food. Some argue that if, after ingestion, it is oxidized in the tissues, entering into their formation and repair and giving rise to heat and energy, it may be considered a food, whereas, if it be excreted unchanged it can not be thus classified. Different observers have reached divergent conclusions on the subject, and the explanation must be looked for, in part at least, in differences in method, and in part also in differences in conception of the character of a food. It has been shown that alcohol is oxidized in the animal body, although, at the same time, it interferes with metabolism or oxidation of other substances, as indicated by lessened absorption of oxygen, decline in body temperature, degeneration of albuminous tissues into fat and diminution in the amount of urea, uric acid, carbon dioxid and salts eliminated. This impairment of metabolism may be attributed, among other things, to interference with the oxygenating function of the red blood corpuscles, while the readiness with which the alcohol seizes on the oxygen in the tissues and thus robs the fixed elements of their proper share, results in arrest of decomposition at the stage of fat formation and so, as a whole, in prevention of tissue waste. With the object of determining the exact point at which alcohol begins to be eliminated as such and the amounts of the substances into which it is transformed in the body, Dr. W. H. Goddard[1] undertook a series of experimental observations on dogs in which alcohol was administered in progressively increasing amounts. It was found that when alcohol was administered to the amount of 1/750 part of the body-weight, a little more than 5 per cent. of that amount was excreted. No aldehyd or other derivatives were detected in the expired air, the urine, the blood, or in any part of the body after death, so that it may be concluded that nearly 95 per cent. was utilized as food. When double the amount of alcohol was administered a little more than 6 per cent. was excreted, while acetic aldehyd made its appearance in the expired air, although none could be detected in the urine or elsewhere in the body. Finally, when a large amount of alcohol was administered, rather more than 49 per cent. of alcohol or its equivalent was excreted, and hence was unutilized. Accordingly, Goddard comes to the conclusion that alcohol has a distinct food value when taken in small amounts, but when larger amounts are given it is in considerable part excreted from the body unchanged, while at the same time the unutilized excess interferes with the normal metabolism. Over and above the part that alcohol plays in the metabolic economy, consideration must be given also to its irritant effect on the mucous membrane of the digestive system, and the tissues of the liver, the heart and blood vessels, the kidneys, the nervous system, etc. In a word, therefore, alcohol in small (physiologic) doses may be made to subserve a useful purpose, while in large (toxic) doses it is calculated to do harm.

Medical News.

ILLINOIS.

Chicago.

Wood Sent to Jail.—Dr. N. News Wood, of Christian Hospital notoriety, was sentenced to ten days in jail for contempt of court, December 30, and in addition he was fined $100 and the "hospital" $250, for violation of an injunction restraining them from using the name of Dr. John B. Murphy in connection with the establishment.

Chicago's Health in 1904.—Dr. Arthur R. Reynolds, commissioner of health, reports that during the first eleven months of the year there had been a total of 23,959 deaths from all causes reported, with an annual death rate of 12.54 per thousand—as compared with a total of 25,999 and a rate of 15.15 per thousand during the corresponding period of 1903. Since then there has been a great increase of mortality and the total is swelled to 26,300 for the year 1904, with an annual rate of 13.61 per thousand. Still this is the lowest on record for the city and the lowest by a wide margin for any city of magnitude either in this country or abroad. The lowest previous death rate for Chicago was 13.88 for the year 1901—a year of remarkable healthfulness throughout the world. Only five of the important causes of death show any increase over the number of the previous year. Except deaths from the acute intestinal diseases, which were 16 more than in 1903, the causes showing increases were diseases over which sanitary effort and preventive medicines have as yet gained little or no control. These are: Apoplexy, 116; Bright's disease, 128; consumption, 234, and cancer, 59 more in the previous year. Smallpox, which more than on an epidem spread from repeated importatior has bee combated with such vigilance and efficiency that its mortality is only 30 as compared with 47 in 1903. This vigilance and efficiency, made possible by the city council's emergency appropriation, has prevented any panic or undue excitement from the continued presence of the disease—a presence which must last as long as smallpox remains so widespread throughout the country as it now is. A total of 2,614 fewer deaths among a population some 60,000 more than last year; a reduction of 1,224 deaths under 5 years of age, including 927 of children at the "milk-feeding period" of life; the best sanitary quality of the public water supply ever furnished, and as a consequence of the latter, a vanishing death rate from typhoid fever; a successful battle with frequent importations of smallpox—are among the features of the year on which Dr. Reynolds bases the claim that Chicago has maintained its record for highest degree of healthfulness among all the principal cities of the world—those having populations of more than 300,000 each.

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[1] Lancet, Oct. 22, 1904, p. 113

MARYLAND.

Opening of Peninsula General Hospital.—The Peninsula General Hospital at Salisbury was opened formally December 28. There was a very large atendance of physicians of the eastern shore. The site is elevated, with fine view of Lake Humphrey and Wicomico River. The building cost $50,000 and was a present of Hon. William H. Jackson, M. C. It is of brick, stone and iron, four stories, with basement and sub-basement. The front is 35x46 feet, with two wings each 26x38 feet. In the sub-basement is the steam heating and electric light plant. In the basement is a chapel, embalming and autopsy morgue, dining-room, kitchen and laundry. The first floor contains writing room, physicians' and nurses' rooms, bath and toilet rooms, two wards and dispensary. The second and third floors contain private rooms and public wards, diet kitchens, and on the third floor is an operating room. There is an elevator. The president of the board has fitted up the building at an expense of $4,000, and the treasurer, Mr. W. R. Miller, has given an ambulance worth $500. The state appropriates $5,000 annually for the hospital. Addresses were delivered by Drs. Guy L. Hunner and H. O. Reik, Baltimore, and Dr. Joseph W. Hearn of Philadelphia. The medical staff consists of: Drs. F. M. Slemons, Louis W. Morris, J. McFadden Dick, E. W. Humphreys and George W. Todd, all of Salisbury; visiting medical staff. Dr. Joseph W. Hearn, Philadelphia, general surgeon; Dr. Howard A. Kelly, Baltimore, consultant: Dr. Guy L. Hunner, Baltimore, gynecologist; Dr. H. O. Reik, Baltimore, eye and ear specialist.

NEW YORK.

Measles in Buffalo.—Buffalo is suffering from an epidemic of measles. Forty to fifty cases of this disease are being reported daily to the Department of Health.

Personal.—Dr. A. W. Jayne of North Tonawanda has been appointed health physician to fill the term made vacant by Dr. Leanhardt, who has gone to Porto Rico.

Thrall Hospital.—The annual charity ball for the benefit of this institution, located at Middletown, was given Dec. 27, 1904. This hospital cares for many employes of the Ontario & Western Railroad and Mr. Fowler, president of the road, paid $250 for a ticket to show his appreciation.

Rabies in New York.—According to the last annual report of the State Department of Agriculture, rabies has been more prevalent in New York state than ever before. Rabies has been found to exist in the following counties: Sullivan, Ulster, Saratoga, Broome, Tioga, Tompkins and Chautauqua.

Impurities from Pulp Mills.—Recommendations have been awaiting the action of the legislature to restrain paper factories from polluting the waters of Lake Champlain and the streams in the vicinity with waste products. However, a new process for reclaiming these waste products has been invented in the meantime and is being used at Ausable Forks by which the water comes out perfectly clear, with all the impurities of the mill removed. Other companies expect to install plants, and it is hoped that there will be no further cause for complaint.

Safeguarding of Cities Against Impure Milk.—Health Commissioner Greene of Buffalo held a conference with State Commissioner Lewis and Commissioner Darlington in Albany concerning the safeguarding of cities against impure milk from the country. At present there is no inspection of dairies in the country and the cities have to rely to a great extent on the vigilance of the town health authorities to report dangerous conditions as to the source of the milk supply. It is proposed that New York City and Buffalo have their respective common councils authorize the appointment of the desired inspectors as city employes, the state health commissioner then to appoint them state inspectors without pay. The duties of such inspectors would be to make the rounds of all the dairies at frequent intervals to see that not only are the dairies in good sanitary condition and the utensils kept clean, but also that the cattle are kept in sanitary stables and that no milk from cows afflicted with tuberculosis or other diseases communicable to human beings be sent to the city. On the discovery of contagious disease in the family of a dairyman they are to suspend the sale of milk from this dairy until such time as the milk is beyond danger of infection.

New York City.

Personal.—Dr. Max Einhorn has been elected a corresponding member of "The Society of Physicians of Munich" (Aerztlicher Verein von München).

Beth Israel Hospital.—At the annual meeting of the directors of this institution it was reported that an additional building had been purchased at a cost of $71,000, adjoining the hospital. The total number of patients in the hospital during the year ended September 30 was 1,713; of these 88.5 per cent. were treated gratuitously. There is a surplus of $2,529 in the treasury.

Contagious Diseases.—There have been reported to the sanitary bureau for the week ended December 24, 347 cases of tuberculosis, with 143 deaths; 338 cases of diphtheria and croup, with 49 deaths; 227 cases of scarlet fever, with 15 deaths; 163 cases of measles, with 4 deaths; 60 cases of typhoid fever, with 17 deaths; 185 cases of varicella, and 17 deaths from cerebrospinal meningitis.

Good Collections for the Hospitals.—The general treasurer of the Hospital Saturday and Sunday Association reports an encouraging outlook for the collection now in progress. The returns from the church collections on Hospital Sunday showed large advances over last year. St. Thomas, for example, gave $3,300 more than last year, and the trades auxiliaries also show largely increased collections.

Presbyterian Hospital Deficit.—This hospital, one of the big four in the New York hospital group, reports a deficit of $72,963, which condition is by no means peculiar to this institution. It means that unless the public provides more generously for the hospitals they must come under municipal management. Mr. Frank Tucker, vice-president of the Provident Loan Society, has been urging the plan for raising a large endowment fund, the income to be used in supplementing the present incomes of the group of hospitals which find themselves in the same financial condition as the Presbyterian.

New Immigrant Hospital.—The United States government has planned to build a hospital for the reception of dangerous contagious diseases on an artificial island to be raised in the upper bay near Ellis Island. The land under water has already been purchased from the state of New Jersey and Congress has made available the sum of $150,000 for the construction of the island. The commissioner general of immigration will advertise for bids on the work in the immediate future. Some alarm has been expressed at what might seem to be the creation of a pest corral at the city's front door, but Dr. Doty, health officer of the port, did not think that there would be as much danger as under the present plan, and considered it much more fitting that the United States government should care for immigrants than the city of New York should continue to do so, even though the government was paying the city well for this service.

OHIO.

Ohio Valley Medical Association.—The executive committee of the Ohio Valley Medical Association has selected Henderson, Ky., as the place of the next annual meeting, which will take place Nov. 8-9, 1905. The president, Dr. J. W. Stone, will soon announce the standing committees.

Cincinnati Society for Medical Research.—At the regular meeting of the Cincinnati Society for Medical Research, held Dec. 22, 1904, the following papers were read: "The Sources of Tuberculous Infection in Cincinnati," Dr. B. F. Lyle; "Dystoma Hematoidium of the Bladder," with slides, Dr. A. Faller; "Histologic Findings in a Case of Diabetes Mellitus," Dr. J. E. Greiwe.

Cincinnati's Health in 1904.—The annual report of the health office shows that the number of deaths in Cincinnati during 1904 was 6,975, as against 6,201 for 1903, an increase of 774. The greatest mortality occurred in January, February and March. The number of patients visited by the city physicians during 1904 was 6,250, with a total number of visits of 12,486, as against 6,360 patients and 14,698 visits for 1903.

Highland County Medical Society.—The Highland County Medical Society, a branch of the Ohio State Medical Association, held an all-day session at Hillsboro, Ohio, on January 4, the president, Dr. J. T. Gibson, in the chair. The following papers were read: President's Address, Dr. J. T. Gibson, Lynchburg; "Laryngeal Tuberculosis," Dr. J. A. Thompson, Cincinnati; "Surgical Tuberculosis," Dr. J. C. Oliver, Cincinnati; "Prevention and Cure of Tuberculosis," B. F. Lyle, Cincinnati.

Typhoid Fever in Cincinnati.—Typhoid fever seems to be increasing in Cincinnati, according to the report of the Department of Health, 41 cases with 5 deaths having been reported *for the week ending December 23. The city seems to be* singularly free from other infections, there being reported but one case of measles with no deaths, 12 cases of diphtheria with no deaths, 10 cases of scarlet fever with no deaths, 2 cases of smallpox with no deaths, and a scattering of other infections.

Coroner's Report for Hamilton County.—The report of Dr. Walter B. Weaver, who has just finished his second and last year as coroner of Hamilton County, shows that his office has handled the largest number of cases in its history, a total of 823 for the year. These cases were divided as follows: Homicides, 37; *suicides*, 103. *Manner of suicide—By morphin*, 6; by carbolic acid, 25, a marked falling off from the previous year; by laudanum, 3; by cutting throat, 7; by shooting, 25; by hanging, 14, an increase; by falling in front of train, 1; by drowning, 6; by paris green, 8; by jumping from bridge, 1; by *jumping from* window, 1; by prussic acid, 1; by undetermined poison, 1. Accidents, 334. Nature of accident: Killed by steam railroad, 82; by electric railroad, 28. This is the smallest number of fatalities by electric railroad for a number of terms. Natural deaths, 334; alcoholism, 15, showing an increase over former reports. Total number of native born, 585; foreign born, 219; undetermined, 19; an excess of native born over foreign born and undetermined cases of 366. During Dr. Weaver's first term, 1903, the homicides were 30; suicides, 95; street car cases, 42; steam car, 89; natural deaths, 303; miscellaneous accidents, 223. At the beginning of the new year Dr. Otis Cameron formally assumed the office of coroner of Hamilton County. Dr. Cameron is not new to his duties, as he has occupied the office of *deputy coroner for several years during* the régime of Dr. Walter B. Weaver. Dr. Oliver Coe, who has served as receiving physician to the Cincinnati Hospital for a number of years, has been selected as deputy coroner.

PENNSYLVANIA.

Personal.—Drs. L. M. Frankhouser and Oan J. Thompson have been elected president and secretary, respectively, of the staff of the *Society for the Aid of Indigent Consumptives* of Reading and Berks County.

Physician Injured.—Dr. Frederick W. Van Buskirk, Pottstown, while on a visit to Philadelphia, December 30, fell on an icy pavement and sustained a fracture of both arms at the elbow *joint*. He was treated in the German Hospital.

Philadelphia.

Webster in Philadelphia.—Dr. J. Clarence Webster, Chicago, read a paper before the Philadelphia Obstetrical Society, December 5, on "Fibroid Tumors of the Uterus," and was afterward the guest of honor at a reception given by Dr. Richard C. Norris at his residence.

Hughes Memorial.—*In perpetuation* of the memory of Dr. Daniel E. Hughes, who served as chief physician of the Philadelphia Hospital for 12 years, a bronze tablet was unveiled on the wall of the main entrance to the hospital with appropriate ceremonies, December 27. The memorial was secured by subscriptions from admirers and friends, which were largely secured by the kindly efforts of the *Philadelphia Press*.

Dinner to Dr. Chapin.—In an item of news in The Journal, December 10, 1904, page 1798, the *presentation of an oil painting* of Dr. Chapin was credited to the members of the staff and the board of trustees. We are informed that there were 125 subscribers to the fund, which included, beside those *mentioned* above, a large number of physicians connected with hospitals for the insane, the managers of *the hospitals with which* Dr. Chapin is connected, and of other hospitals, etc.

Decreasing Marriages.—During 1904 there has been a decided falling off in the marriages in this city, as the figures from the marriage license office indicate. During 1903, 13,091 marriage licenses were issued. During the present year only 12,190 were issued, a decrease of 901. These figures, however, were given before the close of the year; therefore, by adding 100 more to the list of 1904 there still would be a *decrease of* 801. The reason for this falling off in the number of marriage licenses the officials believe is due to the publication of the *license list*. This leads, they say, young people who wish to avoid publicity to go to New York, Wilmington and the surrounding counties in the state where no publication is made.

Antitoxin in Diphtheria.—From the study of the cases of diphtheria recently admitted to the Municipal Hospital the *fact* is disclosed that there is marked *indifference* in many quarters as to the value of antitoxin in the treatment of the disease. Of 147 cases admitted to the hospital during September and October not one had received antitoxin before admission. All diphtheria patients admitted to the hospital are *immediately given antitoxin*. The effect of the measure is demonstrated by the following figures: Of 7 cases admitted within twenty-four hours of the initial illness all recovered; of 51 admitted during the second day of the disease 3 (all laryngeal cases) died; of 29 admitted during the third day 3 died; of 25 admitted *during the fourth day* 6 died; of 13 admitted during the fifth day 2 died; of 8 admitted during the sixth day 2 died; of 5 admitted during the seventh day 3 died; of 9 admitted on and after the eighth day of the disease 2 died. In other words, of 87 cases admitted on or before the third day of the disease only 6 died, *giving a mortality of 6.88 per cent.*, while of 60 cases admitted after the third day 15, or 25 per cent., died.

GENERAL.

Missouri Valley Medical Society.—The semi-annual meeting *of the Medical Society of the Missouri Valley* will be held in Kansas City March 23, 1905. An invitation has been extended to the presidents of the state associations within the territory embraced by the Missouri Valley and to the profession in general, and an interesting and profitable meeting is expected.

Southern Medical College Association.—The Southern Medical College Association has elected the following officers: President, Dr. Christopher Tompkins, Richmond, Va.; vice-president, Dr. J. C. LeGrande, Birmingham, Ala.; secretary, Dr. G. C. Savage, Nashville, Tenn.; executive committeee, Drs. J. A. Cain, Nashville; *Charles Rosser, Dallas, Texas, and* W. B. Rogers, Memphis, Tenn.

American Association for the Advancement of Science.—The fifty-fourth meeting of the American Association for the advancement of Science was held at the University of Pennsylvania, December 27-30. *Beside the ten sections of the* American Association, thirty affiliated scientific societies also held their annual meeting. This is the third time the association has met in Philadelphia.

National Association for the Study and Prevention of Tuberculosis.—The first *annual meeting of this association* will be held in Washington, D. C., May 18-19, 1905. There will be three divisions of the work—a sociologic, under the chairmanship of Mr. Homer Folks, New York City; a pathologic and bacteriologic, under the chairmanship of Dr. H. M. Bracken, St. Paul, and a clinical and climatologic division, with Dr. Norman Bridge, Los Angeles, as chairman.

One Hundred Years of Publishing.—The firm of William Wood & Co. of New York has just celebrated its hundredth anniversary and to commemorate it has issued a neat little book entitled "One Hundred Years of Publishing," which gives a history of the firm from its earliest beginning to the present day. With the exception of the Methodist Book Concern, *this is the oldest publishing firm in New York. A most* interesting account is *given* of the various buildings occupied by the firm and of the books and periodicals published by them. The business was founded early in 1804 by Samuel Wood, grandfather of the present senior partner of the firm, and his portrait forms the frontispiece. The first publication was a little primer called "The Young Child's A. B, C, or First Book," and a facsimile of the title page of this is reproduced. In 1810 Samuel Wood moved into a *larger store and took into partnership* two of his sons. In 1817 another move was made and also another son, William Wood, admitted to partnership. The business by this time had increased from the original trade in miscellaneous and second-hand books to the publication and *general sale*. both wholesale and retail, of books and general stationery. From the time of his admission to the firm William Wood was especially interested in medical works, and by his influence particular attention was *paid to* this class of publications. In 1836 Samuel S. and William

Wood bought out the interests of their father, Samuel Wood, and he retired from business. Samuel Wood died in 1844. In 1856 the firm again moved, this time to 389 Broadway. In 1861 Samuel S. Wood died, and for over a year William Wood conducted the business under his own name, moving to 61 Walker street. Soon after he took into partnership his son, William H. S. Wood, the present head of the house. The style William Wood & Co. was then adopted and has since been retained. From the time of his admission to the firm William H. S. Wood advocated further specialization in the direction of medical publications, and in 1866 the first number of the *Medical Record* was published. Various other medical and pharmaceutical journals have also been published by this house. The firm at the present time is composed of William H. S. Wood and his three sons, whose portraits appear in the book.

CANADA.

Toronto General Hospital.—The total number of patients treated at the Toronto General Hospital during the official year past was 3,825. Of these 2,191 were males and 1,634 were females. On Dec. 31, 1904, there were 276 patients in the wards.

Smallpox Statistics in Montreal.—Dr. Laberge, the health officer of Montreal, considers that the smallpox statistics for that city for the past few years is a fine illustration of the saying, "An ounce of prevention is worth a pound of cure." In 1885 the great epidemic carried off 3,164 people. In 1886 there were only ten deaths. From 1886 to 1896 not a death was reported. In 1897 there were 12 deaths, two in 1898, none in 1899, 10 in 1900, 2 in 1901, 10 in 1902, and 2 in 1903.

Pauper Immigration in British Columbia.—Dr. P. H. Bryce, chief medical health officer of the department of the interior at Ottawa, has been for some time in British Columbia securing statistics regarding the entry of diseased and pauper immigrants into Canada by way of British Columbia. The inspection is due to the report that diseased immigrants are getting into Canada by way of Puget Sound ports. There is no fear of European immigrants of the diseased class, who come direct, of getting into Canada via the United States, as the laws are sufficiently rigid in that country, but the government is investigating how far it can proceed with the inspection against the American border cities.

Dr. Osler in Toronto.—The last week of 1904 may well be handed down in the medical history of Toronto as "Osler" week, for Dr. Osler was there all week and, of course, was lionized. On the afternoon of Tuesday, Dec. 27, a reception was held in the new medical buildings by Dean and Mrs. Reeve for the purpose of giving the medical fraternity and their wives an opportunity of meeting Dr. Osler. On the following evening Dr. A. McPhedran, professor of medicine in the university, was at home to Dr. Osler and his medical friends, several being present from a distance from various parts of Ontario. On the afternoon of the following day Dr. Osler formally opened the new home of the Ontario Medical Library Association. This building, which has been recently acquired as a permanent home for this association, is situated in a convenient part of the city. To this library home Dr. Osler contributed $1,000, as well as making a large donation of books, formerly the property of his old preceptor, Dr. Bovel. Dr. Osler was further entertained by the Canadian Club and the Trinity Old Boys' Association.

FOREIGN.

Bubonic Plague at Aden.—From October 26 to November 25 the public health reports state that 21 cases of plague and 9 deaths from that disease were reported from Aden.

Senator Festschrift.—The *Festschrift*, presented to Senator on his seventieth birthday, is a volume of 460 pages, containing thirty works by his former or present pupils. It is published by A. Hirschwald of Berlin.

Zeitschrift f. Experimentelle Pathologie und Therapie.—This new medical periodical is a companion to the *Zeitschrift f. klinische Medizin*, being published in the same form and by the same publisher as the latter. The editorial staff comprises Brieger and Kraus of Berlin, Hering of Prague and Paltauf of Vienna.

Le Radium.—This is the name of a new semi-monthly medical journal just founded at Paris by a company including D'Arsonval, Blondlot, Becquerel, Beclère, Danysz, Oudin and Curie. J. Danne is the secretary, and Masson, 120 boul. Saint-Germain, is the publisher.

Honors for Ingegnieros.—Dr. J. Ingegnieros, professor of nervous and mental diseases at Buenos Ayres, has been awarded the prize offered by the medical faculty for the best scientific work published in the Argentine Republic during 1902-3. His friends gave him a banquet on the occasion. His works on nervous pathology are frequently quoted. Among the latest are articles on the hysteric laugh and the physiologic mechanism of musical language.

New Home for the Semaine Medicale.—The *Semaine Medicale* of Paris enters on its twenty-fifth year in new quarters, having recently moved to the building erected for a residence by the wealthy painter, Munkaczy. The artistic and palatial interior is in marked contrast to the popular conception of an editorial sanctum. The journal occupies the entire building, the editorial sanctum being a hall nearly 50 feet long by 26 wide, richly decorated with carvings, etc., in the renaissance style. The issue for December 14 gives several views of the interior of the new home. They suggest that the office boy will not have much time for his dime novels if he attempts to keep the carvings dusted.

The Don Quixote Tercentennial.—During January will be celebrated the three hundredth anniversary of the publication of *Don Quixote*, and our Spanish exchanges are devoting much space to the medical references to be found therein. The *British Medical Journal*, December 10, remarks that *Don Quixote* may be considered as a study of madness from its predisposing causes to its complete development. The contagion of insanity is shown in its effect on Sancho Panza, and the various efforts to divert the Knight of the Sorrowful Countenance from his exalted ideas indicate that Cervantes had a clear conception of the value of psychic treatment. He mildly satirizes the medical men of his day and makes frequent reference to various drugs and to the value of hygienic living.

Seaside Public Sanatorium.—The Sanatorium Umberto I, for the consumptive poor, erected at Leghorn, Italy, was formally inaugurated in December. Queirolo of Pisa, in the opening address, commented on the modern method of treating tuberculosis, which is to fortify the organism, to renew its energies and to stimulate its tissues to more active reactions. This is best realized at the seashore where the pure, ozonized air, the intense sunlight and the iodized emanations combined with nourishing food supply the elements needed for the struggle with the disease. The air of the Italian coast is a medicated, tonic and stimulant air, while the mildness of the climate and the great uniformity of the temperature are valuable points of superiority. He protested against the saying that "the Italian coast is the flower-strewn tomb for the consumptives of Germany." He also protested against the assumption that the mountains are better than the Mediterranean for tuberculosis, presenting arguments in favor of the seaside sanatoria.

Russian Physicians at Harbin.—Letters from Russian physicians at Harbin state that 32,000 wounded were received from the battles during the last four days of September. During the first weeks in October forty to fifty trains of cars loaded with wounded were always waiting at the station to be gradually emptied. There is a great difference now between the course of the wounds and those observed during the warm weather, the complications being much more serious and frequent. The wounded are not received until eight to twelve days after the injury. The first-aid dressings are, therefore, left unchanged too long, and during the colder weather the soldiers are dirtier and infection of the wounds occurs more frequently. Another reason for the higher morbidity is that the Japanese are using larger bullets with a comparatively soft copper mantle instead of the nickel steel mantles they used at first. During the warm weather scarcely any one succumbed in the hospitals to the effects of his wounds, but the outlook is different now, although the tidal wave of wounded has subsided. Fully 20,000 were given shelter in Harbin, the Red Cross and similar institutions caring for only 2,000, while all the rest were in the hands of the military surgeons. The writer of the letter from which we quote the above states that so much is said, written, printed and telegraphed about the work of the Red Cross that one is apt to forget that scarcely more than 10 to 12 per cent. of all the wounded pass through its hands. The care in the Red Cross hospitals averages better than in the military hospitals, but at an incomparably greater expense. There is plenty of good food in the army hospitals, and in every respect they hold their own in comparison, while in cleanliness they surpass the Red Cross. In the military hospital in his charge there are accommodations for 630 patients, with a surgical force of four, one of whom is a gynecologist. The letters written home by the recently deceased Dr. B. Böttcher have been published in book form under the title, "With the Red Cross in the Far East."

LONDON LETTER.

The Motor Ambulance.

At the headquarters of the army medical corps an interesting series of trials was made to show that the motor car may be useful as an ambulance, for the generation of electricity, for the lighting of field hospitals, for the manufacture of ice, for the sterilization of water and for many other useful purposes in the field. On the snowclad square of the barracks the motor stood covered with armored plating one-quarter of an inch thick, forming an effectual protection against bullets. The driver was protected by shields. Within the shelter sat two Red Cross men. The idea is that the motor could advance to where the wounded lie, even in the line of fire. Then stationary armor flaps would be opened and complete protection afforded to the wounded and dressers while first aid is being rendered. After this they would be rapidly sent to the rear. The trials were watched by Sir William Taylor, director general of the army medical corps, who expressed his satisfaction.

The Health of the Navy.

A blue book containing a statistical report of the health of the navy for 1903 has been issued. On the whole the returns are very satisfactory. With an increase of 3,500 men as compared with the previous year there are decreases in the cases of illness, invalidings and deaths. The numbers are respectively 85,735, 2,478 and 433, in comparison with 85,769, 2,985 and 590 in 1902. The aggregate number of cases of disease and injury for the year furnishes a ratio of 831.57 per 1,000, which shows a decrease of 29.56 per 1,000 as compared with 1902, and of 48.6 when contrasted with the average of the last six years. The invaliding ratio—namely, 24.03 per 1,000—shows a decrease of 5.93 as compared with 1902, and also a decrease of 6.94 in comparison with the average for the last six years. The highest invaliding rate was on the North American and West Indian stations. As regards the death rate, the ratio per 1,000 was 4.19, showing a decrease of 1.73 as compared with 1902, also a decrease of 1.49 as compared with the average of the last six years. The highest death rate occurred on the East Indian station. The total death rate, 4.19, is the lowest recorded since 1856. The death rate from disease alone was 2.79 per 1,000, which is .72 less than in the previous year.

The Milk Supply of Towns.

The question of the milk supply of towns has been considerably discussed of late. It is certain that the conditions of many dairies and the manner of transport of milk leave much to be desired. How to obtain "clean milk" instead of that too often supplied containing much dirt and therefore swarming with germs is the problem. In a paper on "The Management of the Milk Supply of Towns," read before the Charity Organization Society, Dr. Edmund Cautley said that it is a matter of difficulty and uncertainty for the rich and almost one of impossibility for the poor to obtain satisfactory milk in large towns. There is a lack of efficient control. The local authority in London, for example, has due control over the production of milk in its district, but none whatever over that brought from the country. Consequently milk is drunk in London which has been declared unfit for sale in the country or in other large towns. It is difficult for the local authority to ascertain the exact source of the milk supply of any particular vendor. Even when this has been done it is only with considerable trouble and after the loss of a dangerous amount of time that the local authority, by means of a cumbrous legal process, can stop the delivery in its district of infected milk from a farm. Moreover, the same milk may still be delivered in an adjacent district. With regard to the bacteriologic impurity of milk from samples of milk bought in London, Dr. Cautley found from 3,000,000 to 30,000,000 of microbes in each teaspoonful. Though most of these microbes were harmless, it is by no means uncommon to find dangerous ones. In 14 per cent. of London milk the tubercle bacillus has been found.

The Expedition of the Liverpool School of Tropical Medicine to the Congo.

A most important and interesting report has been sent from the Congo by the expedition dispatched by the Liverpool School of Tropical Medicine. A state steamer was placed at the disposal of the expedition by the government, enabling it to make fairly complete observations of the spread and distribution of sleeping sickness along the Congo River from the "Pool" to the "Falls"—a distance of nearly 1,000 miles. A disease the nature of which has previously been unrecognized was found to occur amongst the state's cattle. Its pathogenic agent was shown to be a trypanosome, the species of which is yet undetermined. Sleeping sickness is a terrible scourge, especially amongst the river tribes. It is obvious that the disease has spread in the Congo in recent years along the lines of communication, that is, along the rivers. Declared cases of sleeping sickness are easily recognized, but the trypanosome may be present in the blood for months and even years while the patient remains in apparent health. It is believed that palpation of the cervical glands is an excellent clinical method of detecting an infected person. When many of these glands were enlarged to above 1.5 by 1 cm., other causes being absent, trypanosomes were generally found in the drop of fluid obtained by aspirating a gland with a hypodermic syringe. As a rule simultaneous examination of the blood gave a negative result.

The Medical Profession and the Teaching of Hygiene.

A petition signed by 14,718 medical practitioners has been directed to the central educational authorities of the United Kingdom in which each local authority is urged to consider whether it would not be possible to include in the curricula of public elementary schools and to encourage in the secondary schools such teaching as may lead all children to appreciate at their true value bodily conditions as regards cleanliness, pure air, food, drink, etc. The petitioners consider that such instruction should be placed among the subjects of compulsory education and be given at an earlier age than at present. They point out the conditions which prevail in Canada, Australia and America for such teaching. A syllabus of suggested courses in the teaching of hygiene and temperance has been drawn up and adapted to the different ages of the children in elementary schools, special attention being drawn to the deleterious effects of alcohol.

Correspondence.

The Propriety, Indications and Methods for the Termination of Pregnancy.

Boston, Dec. 20, 1904.

To the Editor:—In reply to the enclosed* letter: In my paper I have stated what are now generally considered to be the indications for the termination of pregnancy in properly selected cases, so that it is unnecessary for me to review the subject again here. As I have nothing to conceal in this matter, however, and as every operation that I have performed has been done after mature deliberation and consultation with reputable men, I have made a brief report of each case for publication.

1. Mrs. E. F. B., Oct. 15, 1900; seen in consultation with Dr. A. A. Cliff; patient had also been seen by Dr. L. A. Cliff; young married woman with extreme exhaustion from constant vomiting; she and husband both desirous of children and to have pregnancy continued if possible. Condition extreme and recovery considered doubtful even with operation. Adherent retroversion. Pregnant about six weeks. Curettage under primary anesthesia.

2. Mrs. F. W. H., Nov. 26, 1900; was referred to me by Dr. G. H. M. Rowe, superintendent of the Boston City Hospital, and was seen in consultation with Dr. S. W. Kelley, ex-president of the East Middlesex District Branch of the Massachusetts Medical Society. First pregnancy about six years before, and patient and her husband were anxious for other children. Second pregnancy at two months; critical condition from continued vomiting. At second consultation uterus curetted under very light anesthesia.

3. Mrs. E. R. F., wife of a physician; first seen July 11, 1903; about four weeks pregnant, with a mild degree of pelvic inflammation, and with marked degree of emaciation and general exhaustion. No improvement in condition under treat-

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* Editor's Note: This letter is a reply to that of Dr. Cattell in The Journal, Dec. 31, 1904. We sent a copy of Dr. Cattell's letter to Dr. Higgins December 9, asking him to send at once any reply that he wished to make. After waiting two weeks we published Dr. Cattell's letter in the issue of December 31, which went to press December 28. Dr. Higgins' letter was received December 30.

ment and restriction to bed. Husband suggesting that pregnancy be ended, I asked Dr. Charles M. Green, associate professor of obstetrics and clinical gynecology at the Harvard Medical School, to see the patient with me. Dr. Green saw the patient in consultation August 17, and advised operation, which was done, Dr. L. R. G. Crandon assisting.

4. Mrs. C. N. C., Sept. 29, 1904; seen in consultation with Dr. Edward T. Twitchell. Patient had been in a critical condition from previous illness and had been cautioned against immediate risk of pregnancy. I was asked to see the patient immediately early in the morning, because of her rapid decline from vomiting. Patient was in a private hospital, and operating table, etc., had been prepared for operation, but to save time and the patient's strength, she was quickly curetted on the bed under primary anesthesia. Vomiting ceased, but patient died in about twenty-four hours of exhaustion.

5. Mrs. G. H. H., wife of a physician; seen in consultation with her husband and Dr. J. B. Lyons; was referred to me by Dr. F. C. Shattuck, professor of clinical medicine at the Harvard Medical School. Patient was first seen on Nov. 20, 1903, and was in a very critical condition from continued vomiting, but operative relief was very much opposed and at first refused by the patient and her family. Three days later I was again summoned and performed the operation, assisted by Dr. Furrer. Recovery was very slow and during the convalescence Dr. Shattuck saw the case in consultation with me.

6. Mrs. E. M. G., Dec. 30, 1903; seen in consultation with Dr. Francis Magurn; about three and a half months pregnant; failing rapidly from inability to take and retain food. The cervix was dilated and applications made with the hope of obtaining some relief. Dr. E. M. Plummer, the laryngologist, saw the patient several times with the hope of relieving throat symptoms, which it was thought might be interfering with taking food. Dr. J. A. McDonald also saw the patient twice at the request of the family, and finally advised an immediate operation to save her life, although at first he was inclined to doubt the necessity for it, as he had never seen a similar case in many years' experience. Operation was performed on January 12, and Dr. Freeman Allen was asked to go out of town in the night to etherize, because of the patient's urgent condition and that it was impossible to empty the uterus at this period of pregnancy under primary anesthesia. There was improvement for a short time after the operation, but other symptoms developed, delirium, blindness, cerebral retraction, etc., and death in about seven weeks. It seemed probable that the cause was a tubercular meningitis.

7. Mrs. F. W. H.; same patient as No. 2. Anxious for more children and about two years before consulted Dr. Kelley to see if he considered it safe for her to become pregnant again. March 17, 1904, Dr. Kelley telephoned me that Mrs. H. was in a dangerous condition from pernicious vomiting of pregnancy, and asked me to see the case with him. After consultation with Dr. Kelley immediate operation was done to relieve the patient.

8. Mrs. G. H. H.; same patient as No. 5, and seen in consultation as before, Sept. 17, 1904. Subacute appendicitis complicating pregnancy; very severe vomiting and most distressing thirst, retaining no food and practically no liquid. As some form of relief was fast becoming imperative, it was debated whether the appendix should be removed or the uterus emptied. The latter seemed the safer procedure, inasmuch as removal of the appendix might not relieve the symptoms, and she was in no condition to undergo both.

9. Mrs. R. K.: first seen Sept. 16, 1904, with Dr. Francis J. Ford. About four months pregnant: last confinement about one year before, which she barely survived, owing to cardiac and renal disease. When first seen she was beginning to complain of shortness of breath, inability to walk much or to go up stairs. The question of interference was raised, but it was thought that under rest and care she might reach the viable period. She grew worse, however, and on October 18, after a bad night with pain, increasing dyspnea and cyanosis, labor was induced.

The above include all of my cases done before the viable period. There are also some cases in which premature labor was induced after the seventh month, but I see no necessity for reporting these at this time. FRANK A. HIGGINS.

Enuresis in Children.

NEW YORK, Dec. 30, 1904.

To the Editor:—The editorial in THE JOURNAL of Dec. 24, 1904, and the previous comments on the paper of Dr. J. C. Rey, on the subject of enuresis in children, both seem to leave Hamlet out of the play. Preputial adhesions are so predominantly the cause for enuresis, or at least the precipitating factor, that they might well be referred to in Celtic capitals in "scarehead" proportions in the text of contributions on the subject. Particularly in girls is enuresis dependent on preputial adhesions. It is one of the curiosities of medical literature that the subject of preputial adhesions is dealt with chiefly in reference to boys, while, as a matter of fact, girls need circumcision more frequently than boys for the reason that they are more subject to preputial adhesions than boys are. The more impressionable nervous system of girls responds to the irritation more quickly and more extensively than it does in boys. If any woman physician struggling for practice wishes to get some brilliant results, and fame ahead of time, let her take up the subject of circumcision in girls. Concerning the single symptom of enuresis, it will commonly disappear on the day on which circumcision is performed, and will not reappear. In older patients who have developed an enuresis habit, in spite of applications of moral suasion, belladonna, the back of a hair brush, and Eddyism, there is a tendency for occasional enuresis after the cause has been removed, but the results of circumcision in the cases that are dependent on preputial adhesions are so prompt, as a rule, that we are not left in any doubt about the character of the influence that had been at work. ROBERT T. MORRIS.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

QUALITATIVE SUGAR REACTION IN THE URINE.

To the Editor:—Anent your editorial in THE JOURNAL, Dec. 10, 1904, on the above subject, permit me to call you attention to the method advocated in inclosed reprint. It is much simpler, it is no more time consuming, and it is more certain (in small percentages) than is fermentation, and it is certainly much less trouble. W. C. RILEY.

ANSWER.—The method recommended by Dr. Riley is as follows: "Take equal parts of the suspected fluid and Fehling's, cold, mix thoroughly and set aside. Any urine containing .05 per cent. or more glucose will react, giving a yellow precipitate in the course of 24 hours or less, according to the amount of glucose present and the room temperature." In connection with Dr. Riley's comment a brief historical review of our knowledge of the reduction of copper salts by sugar in the urine may be of interest. The fact that salts of copper, especially blue vitriol, are reduced in alkalin solution by glucose with separation of red cuprous oxid was first discovered by Becquerel; the reaction was not studied carefully, however, until 1841, when at Mitscherlich's suggestion Trommer looked into the matter and demonstrated the extraordinary delicacy of the reaction which has since borne his name. Müller and Hagen showed later that under favorable conditions as little glucose as 0.0000833 gram in ice water could be easily and certainly demonstrated. On applying Tommer's test or other copper tests to urine, however, peculiar difficulties are met with owing to the fact that substances other than sugar in the urine (e. g., uric acid, pigments, kreatin, kreatinin, albumen, peptone, ammonium salts, as well as various drugs—chloral, salicylic acid, salol, phenacetin, antipyrin, acetanilid, salfonal, etc.) are capable of reducing the copper salts or of preventing the precipitation of cuprous oxid: thus Jolles[1] has shown that mistakes that correspond to as much as 0.24 per cent. of glucose may be made. The disturbing effect of other reducing substances in the urine can often be decreased by diluting the sample five or ten times (Zehuissen). More important still, glucose reduces at a temperature below 100 C.: the others usually only on boiling. Another method recommended by Focke[2] consists in boiling 10 grams with 5 g. copper-sulphate solution (1:9), to the well-cooled filtrate adding

William M. L. Fisk, M.D. Bellevue Hospital Medical College, New York City, 1863, a veteran of the Civil War, died from heart disease at his home in Brooklyn, N. Y., December 21, after an illness of four years, aged 63.

Henry C. McLean, M.D. New York University, New York City, 1873, a member of the New York State Medical Society, died at his home in Brooklyn, December 23, from neuritis, after an illness of a year, aged 44.

Merlin Caldwell, M.D. Western Pennsylvania Medical College, Pittsburg, 1904, of Ford City, Pa., died at Mercy Hospital. Pittsburg, December 23. after an illness of three weeks, from typhoid fever, aged 30.

Levi Mathiew, M.D. College of Physicians and Surgeons of Chicago. 1883, who recently moved to Chicago from St. Anne. Ill., died at his home from paralysis, December 11, after an illness of a year, aged 54.

Edward Hooker Dewey, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862, died at his home in Meadville, Pa., December 21, from paralysis, after a long illness. aged 67.

Reuben Satterfield, M.D. University of Nashville, Tenn., 1900. was assaulted by a negro farm hand on his farm in Allen County, Ky.. November 24. and died December 1 from his injuries. aged 35.

Frederick C. Cluxton, M.D. University of the Victoria College. Coburg. Ont., 1871, committed suicide while mentally irresponsible. by shooting himself through the head, December 17. aged 58.

Elmore H. Wells, M.D. Bellevue Hospital Medical College, New York City, 1867. a surgeon in the federal service during the Civil War, died at his home in Meshoppen, Pa., December 13.

Enos Penwell, M.D. Indiana Medical College. La Porte, Ind., 1848. for more than half a century a practitioner of Shelbyville, Ill., died at his home in that city. December 24. aged 83.

Samuel Carson Garver, M.D. Medical Department University of Illinois. Chicago. 1898. committed suicide by taking carbolic acid at his office in Birmingham. Ala.. December 3. aged 32.

James W. Cairncross, M.D. Bellevue Hospital Medical College, New York City, 1875, died at his home in Wauwatosa. Wis., December 21. after a prolonged illness, aged 52.

Earl Devore, M.D. Medical College of Ohio. Cincinnati, 1900, died while en route from Florida to his home in Ripley, Ohio, December 28. from tubercular peritonitis, aged 26.

Jeremiah W. Dearborn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor. 1857, died at his home in Maplewood. Maine, December 9, aged 72.

Thomas A. Curtis, M.D. College of Physicians and Surgeons in the City of New York. 1886. died from pneumonia at his home in Red Bank, N. J., December 23, aged 43.

Lewis A. Foote, M.D. University of Michigan Department of Medicine and Surgery. Ann Arbor, 1873, died at his home in Grand Rapids. Mich.. December 24. aged 56.

John S. Prettyman, M.D. New York, 1867, consul at Glasgow. Scotland, in Lincoln's administration, died at his home in Melford. Del., December 24, aged 79.

D. L. Stine, M.D. American Medical College, Indianapolis, 1897. a member of the State Dental Board. died from peritonitis following appendectomy. December 7.

John Alonzo Osborne, M.D. Medical Institute. Cleveland, 1855. died suddenly at his home in Portsmouth, Ohio. from heart disease. December 4. aged 73.

William Pike Phelon, M.D. Medical Department of the University at Keokuk, 1865. died at his home in San Francisco. December 29. from heart disease.

Joseph A. Ringe, M.D. University of Würzburg. Germany, 1868. died at his home in St. Louis. December 14. after an illness of seven months, aged 65.

Charles J. Miller, M.D. Hospital College of Medicine. Louisville. Ky.. 1901. died from pneumonia at his home in Shawnee, Okla.. December 25, aged 32.

James Orr, M.D. Tulane University of Louisiana Medical Department. New Orleans. 1871, died at his home in Terrell, Texas. December 25. aged 57.

William J. Jones, Jr., M.D. New York University. New York City. 1891. of Winston. N. C.. died suddenly near Verona. N. C., December 19. aged 34.

Lyman Leavit, M.D. Pennsylvania Medical College. Gettysburg, 1857, died at his home in Trenton, N. J., from pneumonia, December 29.

John E. Frick, M.D. University of Heidelberg, Germany, 1850, died at his home in Limaville, Ohio, Nov. 7, 1904, aged 80.

D. C. Wallace, M.D. Missouri Medical College, St. Louis, 1856, died at his home in Litchfield, Ill., December 21, aged 85.

Ellen O. Beebe, M.D. Illinois, 1879, was found dead in her apartments in Chicago, December 30, from exposure, aged 55.

George H. Miller, M.D. Rush Medical College, Chicago, 1874, died suddenly at his home in Galena, Ill., December 30.

Caleb N. Harrison, M.D. Johns Hopkins Medical School, Baltimore, died in Madison, Wis., Oct. 11, 1904.

Homer J. Doucet, M.D. Pennsylvania, 1863, died at his home in Philadelphia, December 20, aged 84.

Leonard D. Skilling, M.D. Illinois. 1878, died at his home in Kiowa, Kan., Nov. 1, 1904, aged 88.

Deaths Abroad.

P. Gradenigo, M.D., the well-known professor of ophthalmology at Padua, Italy. died there December 1, aged 73. He belonged to a family which gave four doges to the republic of Venice, and in his scientific career he has always been one of the pioneers. His pupils had collected his works into a *Festschrift*, which was to have been presented to him this month in honor of the thirtieth year of his professorship. His favorite field of work was surgical operations on the eyes, and he devised many new ones and perfected others, among them the technic which allows extraction of a cataract without the tedious waiting for it to ripen, and his plastic operations on the lids and on the cornea. He proclaimed the importance of massage for the eyes as early as 1882. and in 1894 published examples of its efficacy in treatment of detachment of the retina. He also invented several instruments and founded and edited the leading Italian ophthalmic journal.

A. Reder von Schelmann, M.D., former professor of surgery and later of dermatology at Vienna, died there November 10, aged 79. He had been president of the Vienna Doktoren-Collegium since 1891.

O. Bode, M.D., a well-known Berlin surgeon and writer on surgical subjects, succumbed to professional blood poisoning November 25, aged 44.

A. S. Herrero, M.D., professor of clinical medicine at Madrid. died there November 28.

K. Koester, M.D., professor of pathology at Bonn. died there December 2, aged 62.

Book Notices.

The Principles and Practice of Gynecology, for Students and Practitioners. By E. C. Dudley, A.M.. M.D.. President of the American Gynecological Society. Fourth Edition. Revised. With 409 Illustrations in Colors and Monochrome. of Which 18 Are Full-page Plates. Cloth. Pp. 771. Price. $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1904.

One finds in this many changes from former editions. Much new matter has been added and much of the old has been thoroughly revised and rewritten. Of the greatest value are the four hundred illustrations. Most of these are new and they have been so well executed that they convey clearly the ideas intended. There can not be too many good illustrations, but poor ones are worse than none. The subdivision of the subject is a natural one and the subheads under the chapters have been conspicuously typed so that one may quickly turn to the particular point desired. The work is well arranged and published and, as the author's views are sound, it must take its place as one of the best text-books on the subject.

A System of Practical Surgery. By Prof. E. von Bergmann. M.D., P. von Bruns. M.D.. and J. von Mikulicz. M.D. Volume IV. Surgery of the Alimentary Tract. Volume V. Surgery of the Pelvis and Genitourinary Organs. Translated and Edited by William T. Bull. M.D.. Professor of Surgery. College of Physicians and Surgeons. Columbia University. New York. Edward Milton Foote. M.D., Instructor in Surgery, College of Physicians and Surgeons. Columbia University. New York. Carleton P. Flint. M.D.. and Walton Martin, M.D. Cloth. Pp. 758. Price. $30 per set. 5 volumes. New York and Philadelphia: Lea Brothers & Co. 1904.

Vols. I. II and III have already been reviewed in these columns. Vols. IV and V complete the work. The translation has been very liberal and at times the matter greatly condensed. The omission of the short bibliography which follows each principal subject in the original is a distinct loss to the translated edition, a loss for which the slight saving in space does not at all compensate. Each volume has its own index beside a general index at the end of the fifth volume which covers fifty pages and which is complete, enabling one quickly to find any subject desired.

A MANUAL AND ATLAS OF MEDICAL OPHTHALMOLOGY. By Sir Wm. R. Gowers, M.D., F.R.S. Fourth Edition. Edited by the Author and Marcus Gunn, M.B., F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital. Pp. 318. Illustrated. Cloth. Price, $4.00. Philadelphia: P. Blakiston's Son & Co. 1904.

This well-known text-book, which has for so many years been a work of standard reference for the ophthalmologist, the neurologist and the practitioner of general medicine, is now reprinted, with additions, for the third time. The text has not undergone many alterations since the third edition was published, but the colored illustrations have been omitted. We must confess that we regard this innovation, in the reproduction of ophthalmoscopic pictures especially, as a decided improvement. The autotype plates, in making no pretense of reproducing the coloration of the fundi, are at least not misleading (as the colored plates were) and furnish a good idea of the changes in and the appearance of the ocular background. The original drawings are in sepia by the author and the collaboration of Mr. Marcus Gunn, the well-known ophthalmic surgeon, has further enriched the book. This valuable manual ought to be in the hands of every physician who desires to possess the great advantage of a knowledge of ophthalmoscopy as an indispensable help in the diagnosis of general disease.

A TEXT-BOOK OF HISTOLOGY. By Frederick R. Bailey, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons. Profusely Illustrated. Cloth. Pp. 481. Price, $3.00 net. New York: Wm. Wood & Co. 1904.

A casual examination of this volume leads to the impression that it is to a certain extent an abridgement of a very popular work on histology by another author. A careful and thorough review strengthens this impression and leads us to make the statement that the larger work has apparently suffered in being thus abridged. Furthermore, the author makes the mistake, as have many other writers, of giving a general technic not at all suitable for the tyro and altogether too elementary and incomplete for the teacher and research worker. It assumes preliminary knowledge on the part of the reader and yet is simply the technic which has proved useful in the hands of the author. The directions for technic, however, which are appended to each chapter are commendable because they are such as will be a benefit to all entering on the study of this subject. So, too, the short embryologic references at the beginnings of chapters serve a useful purpose. Far too much space is devoted to the discussion of so unimportant a tissue as fat, while, on the other hand, the description of bone leaves much to be wished for. The special chapters devoted to the skeletal system and to the muscular system are merely useless repetitions; nor is there any need for discussing the articulations in a text-book on histology. The illustrations, many of which are original, are excellent, as is also the mechanical work as a whole.

CLINICAL URINOLOGY. By Alfred C. Croftan, Professor of Medicine, Chicago Post-Graduate Medical College and Hospital: Illustrated. Cloth. Pp. 298. Price, $2.50 net. New York: Wm. Wood & Co. 1904.

The author states in his preface that this book was not intended to be a mere laboratory guide, nor a purely clinical treatise, but a description of the borderland between the laboratory and the clinic. This purpose, on the whole, has been accomplished satisfactorily. The book has many advantages. It is brief. It is written by a physician who has had much more training in chemical examinations than practitioners on the average receive. The author has taken especial pains to interpret urinary findings clinically, so far as it is possible to do so at present, and this last is the feature of the book which will make it most attractive, we think, to the practitioner. The chapters dealing with albuminuria, the purin bases, glycosuria, acetonuria, the conjugate sulphates and glycuronates are modern and interesting. The inorganic constituents of the urine receive an unusual degree of attention, but deservedly so in the light of newer investigations which have revealed to us an importance of these substances hitherto unsuspected. A welcome chapter is that on the determination of the renal function in which are discussed the value of cryoscopy, the methylene-blue test, the phlorizin method and the toxicity of the urine as an index of renal activity. Here and there in this volume the dogmatic tone adopted jars a little, but dogmatism can be more easily condoned in a book of this kind than a wavering indecision. Now and then the choice of method might have been improved, we think; the convenient Hopkins method (as now modified) for estimating uric acid might well have taken the place of the unreliable Heintz method; Penzoldt's test for acetone with orthonitrobenzaldehyd is too good to be omitted; the reaction for indican with dimethylamidobenzaldehyd is perhaps the most delicate test we have for that body and should be included in another edition, along with, perhaps, fuller details rather than bare mention of the rather rough but clinically helpful methods of quantitative estimation of indican worked out by H. Straus and J. Bouma. The reliability of the fermentation test for glucose is scarcely sufficiently emphasized, while on the other hand the ease of differentiating the various crystalline ozazones by melting point determinations is exaggerated. The word "serin" used on page 10 as synonymous with serum albumin should no longer be employed in this way, since by "serin" chemists now understand a definite chemical compound, namely, alpha-amino-beta-oxypropionic acid. The "sodium nitrate" recommended in Arnold's test on page 107 appears to be a misprint for sodium nitrite. The book should have a distinct influence in stimulating interest in the newer studies of the urine and in making clear to the clinician the significance of the results which the chemical methods, especially of urinary examinations, are capable of yielding.

THE BOOKS OF A YEAR.

List of Books Published on Medical Subjects During the Year 1904.

The following is a list of the new books published in the United States in the year 1904. It may contain some books that were published before 1904, as we have had to depend on the replies of publishers to our letters and they may not have fully understood in every case the limits we desired to put on the list. Some books may have been omitted which should be here, but we have tried to make the list complete. Second editions or other republications are not included, nor are foreign books which are not issued under the imprint of an American publishing house.

Anatomy.

Anatomy of the Brain. J. F. Burkholder. Price, 2.00. Engelhard.

Laboratory Manual of Human Anatomy. Lewellys F. Barker. $5.00. Lippincott.

Treatise on Applied Anatomy. Edward H. Taylor. $9.00. Lippincott.

Bacteriology.

Bacteriology and the Public Health. George Newman. $5.00. Blakiston.

Clinical Diagnostic Bacteriology, Including Serum Diagnosis and Cytodiagnosis. Alfred C. Coles. $2.75. Blakiston.

Rabies, Its Place Among Germ Diseases and Its Origin in the Animal Kingdom. David Sime. 10½ shillings. Macmillan.

Chemistry.

Clinical Urinology. Alfred C. Croftan. $2.50. Wood.

Elements of Chemistry. M. M. Pattison Muir. $3.50. Blakiston.

Epitome of Inorganic Chemistry and Physics. A. McGlannan. $1.00. Lea.

Epitome of Organic and Physiological Chemistry. A. McGlannan. $1.00. Lea.

Examination of the Urine. G. A. de Santos Saxe. $1.50. W. B. Saunders.

Immune Sera. Hemolysins, Cytotoxins and Precipitins. A. Wassermann. $1.00. Wiley.

Manual of Clinical Microscopy and Chemistry. Herman Lenhartz. $3.00. Davis.

Outlines of Physiological Chemistry. S. P. Beebe and B. H. Buxton. $1.50. Macmillan.

Practical Physiological Chemistry. J. A. Milroy and T. H. Milroy. $1.60. Longmans.

Text-book of Quantitative Chemical Analysis by Gravimetric, Electrolytic, Volumetric and Gasometric Methods. J. C. Olsen. $4.00. Van Nostrand.

Toxicology. Edwin Welles Dwight. $1.00. Lea.

Uric Acid, an Epitome of the Subject. Alexander Haig. $1.00. Blakiston.

Diagnosis.

Manual of Serum Diagnosis. O. Rostoski. $1.00. Wiley.

Medical Laboratory Methods and Tests. Herbert French. $1.50. Keener.

Serums, Vaccines and Toxins in Treatment and Diagnosis. Wm. Cecil Bosanquet. $2.00. Keener.

Surgical Diagnosis. James Berry. $2.00. Blakiston.

Text-book of Clinical Diagnosis. L. Napoleon Boston. $4.00. Saunders.

Genitourinary, Cutaneous and Venereal Diseases.

Development and Anatomy of the Prostate Gland. W. G. Richardson. $3.75. Churchill.

Prostatic Hypertrophy. By C. M. Phillips and 40 Authors. $1.75. Mathews.

Social Diseases and Marriage. *Social Prophylaxis. Prince A.* Morrow. $3.00. Lea.

Syphilis and Gonorrhea. C. F. Marshall. $2.25. Redman.

Value of Ureteric Meatoscopy in Obscure Diseases of the Kidney. E. Hurry Fenwick. $2.50. Keener.

Histology.

Normal Histology. Jeremiah S. Ferguson. $5.00 Appleton.

Text book of Histology. Frederick R. Bailey. $3.00. Wood.

Hygiene.

Beauty Through Hygiene. Emma E. Walker. $1.00. Barnes.

Examination of Water and Water Supplies. John C. Thresh. $4.00. Blakiston.

Food Inspection and Analysis. Albert E. Leach. $7.50. Wiley.

Health and Disease in Relation to Marriage and the Marriage State. Vol. I. $7.00. Redman.

Health, *Strength and Power.* Dudley A. Sargent. $1.75. Caldwell.

Methods of Teaching Gymnastics. W. G. Anderson. $1.25. Hinds and Noble.

Physical Education by Muscular Exercise. Luther H. Gulick. *75 cents. Blakiston.*

The Prevention of Disease. $7.50. Funk & Wagnalls.

Suppression of Tuberculosis. E. von Behring. $1.00. Wiley.

Weather Influences Edwin Grant Dexter. $2.00. Macmillan.

Laryngology.

Adenoids. Wyatt Wingrave. $1.00. Keener.

Cleft Palate and Harelip. Edmund Owen. $1.00. Keener.

Materia Medica, Pharmacology and Therapeutics.

Action of Light as a Therapeutic Agent. Leonard K. Hirshberg. Snow & Farnham.

Diet in Health and Disease. Julius Friedenwald and John Ruhräh. Saunders.

Elements of General Radiotherapy for Practitioners. Leopold Freund. $5.00. Rebman.

Introduction to Pharmacognosy. Smith Ely Jelliffe. $2.50. Saunders.

Light Energy; Its Physics, Physiological Action and Therapeutic *Applications. Margaret A. Cleaves. $5.00.* Rebman.

Modern Practical Electricity. R. M. Walmsley. $12.00. Keener.

Philosophy of Therapeutics. Eldridge C. Price. $2.00. Nunn & Co.

Practical Dietetics. Diet in Health and Disease. A. L. Benedict. $1.50. Engelhard.

Radiotherapy, Phototherapy and High Frequency Currents. Charles Warren Allen. $4.50. Lea.

Roentgen Ray Diagnosis and Therapy. Carl Beck. $4.00. Appleton.

Self-cure of Consumption Without Medicine, with a Chapter on the Prevention of Consumption and Other Diseases. Charles H. Stanley Davis. Treat.

Text-book of Alkaloidal Therapeutics. W. F. Waugh and W. C. Abbott. $5.00. Clinic.

Text-book of Materia Medica. Robert A. Hatcher and Torald Sollman. $2.00. Saunders.

Therapeutics of Mineral Springs and Climates. I. Burney Yeo. $3.50. Keener.

Unconscious Therapeutics, or the Personality of the Physician. Alfred T. Schofield. $3.50. Blakiston.

Miscellaneous.

All Around Specialist. J. R. McOscar. $3.50. Keener.

Dictionary of New Medical Terms. George M. Gould. $5.00. Blakiston.

Appleton's Medical Dictionary. Edited by Frank P. Foster. *$10.00. Appleton.*

Doctor's Confession. Wm. Hinshaw. $1.25. Mathews.

Physician Versus Bacteriologist. O. Rosenbach. $1.50. Funk & Wagnalls.

Railway and Other Accidents. Allan M. Hamilton. $3.50. Wood.

Sexual Life. C. W. Malchow. $3.00. The Burton Co., Minneapolis.

Text book of Legal Medicine and Toxicology. Edited by Frederick Peterson and Walter S. Haines. $5.00. Saunders.

Nervous and Mental Diseases.

Epilepsy and Its Treatment. William P. Spratling. $4.00. Saunders.

Epitome of Nervous and Mental Diseases. Joseph Darwin Nagel. $1.00. Lea.

Force of Mind. A. T. Schofield. $2.00. Funk & Wagnalls.

Insanity in Everyday Practice. E. G. Younger. $1.00. Keener.

Lectures on Clinical Psychiatry. Dr. Emil Kraepelin. $3.50. Wood.

Mental Defectives: Their History, Treatment and Training. Martin W. Barr. $4.00. Blakiston.

Multiple Personality, an Experimental Investigation Into the Nature of Human Individuality. Boris Sidis and Simon P. Goodhart. $2.50. Appleton.

Nerves in Disorder. A. T. Schofield. $1.50. Funk & Wagnalls.

Outlines of *Psychiatry.* Charles Gilbert Chaddock. $2.50. Mathews.

Practical Treatise on Nervous Diseases. F. Savary Pearce. $6.00. Appleton.

Subjective Sensations of Sight and Sound. Abiotrophy and Other Lectures. William R. Gowers. $2.00. Blakiston.

Text-book of Insanity Based on Clinical Observations. R. von Krafft-Ebing. $4.00. Davis.

"The Blues," Causes and Cure. A Variety of Nerve Exhaustion so Largely Prevalent in Our Modern Life. Albert Abrams. $1.50. Treat.

Treatise on Diseases of the Nervous System. L. Harrison Mettler. $5.00. Cleveland Press, Chicago.

Obstetrics and Gynecology.

Atlas and Epitome of Operative Gynecology. O. Schaffer, edited with additions by J. Clarence Webster. $3.00. Saunders.

Mothers' Manual. Evelyn Lincoln Coolidge. $1.00. Barnes.

Obstetrics for Nurses. Joseph B. De Lee. $2.50. Saunders.

Physician's *Practical Gynecology.* W. O. *Henry, Omaha.* The Review Press, Lincoln, Neb.

Manual of Practical Ophthalmology. George A. Berron. Lippincott.

Ophthalmology.

Biographic Clinics. Vol. II. George M. Gould. $1.00. Blakiston.

Commoner Diseases of the Eye, How to Detect and How to Treat Them. Casey A. Wood and Thomas A. Woodruff. $1.75. Engelhard.

Diseases of the Eye. L. Webster Fox. $4.00. Appleton.

Hand-book of the Anatomy and Diseases of the Eye and Ear. D. B. St. John Roosa and A. Edward Davis. $1.00. Davis.

Manual of Practical Ophthalmology. George A. Berry, Lippincott.

Modern Ophthalmology. James Moores Ball. $7.00. Davis.

Ophthalmic Year-book. Edward Jackson. Herrick Book and Stationery Co., Denver.

Optical Dictionary. Edited by Charles Hyatt-Woolf. $1.00. Blakiston.

Pathology of the Eye. J. Herbert Parsons. Vol. I. Histology—*Part 1. $3.50. G. P. Putnam.*

Principles of Refraction in the Human Eye Based on the Laws of Conjugate. Foci. Swan M. Burnett. $1.00. The Keystone, Philadelphia.

Strabismus or Squint. Francis Valk. $1.75. Putnam.

Pathology.

Atlas and Epitome of General Pathologic Histology. H. Dürck. $5.00. Saunders.

Friedberger and Frohner's Veterinary Pathology. Translated and edited by M. H. Hayes. $4.00. Keener.

Manual of Antenatal Pathology and Hygiene. The Embryo. J. W. *Ballintyne.* Wm. Green & Sons, Edinburgh.

Manual of Pathology. Sidney H. C. Martin. $4.00. Blakiston.

Text-book of Pathology. Joseph McFarland. $5.00 net. Saunders.

Pediatrics.

Adolescence. Vols. I and II. G. Stanley Hall. $7.50. Appleton.

Epitome of Pediatrics. Henry E. Tuley. $1.00. Lea.

Lectures on Diseases of Children. R. Hutchinson. $2.40. Longman.

Nutrition of the Infant. Ralph Vincent. $3.50. Wood.

Squint Occurring in Children. E. A. Browne and Edgar Stevenson. $1.00. Keener.

Summer Diarrhea of Infants. H. Illoway. $1.00. E. R. Pelton, New York.

Physiology and Embryology.

Blood Pressure as Affecting Heart, Brain, Kidneys and General Circulation. Louis Faugeres Bishop. $1.00. Treat.

Clinical Study of the Blood Pressure. Theo. C. Janeway. $3.00. Appleton.

Introduction to Vertebrate Embryology. Albert Moore Reese. $1.40. Putnam.

Lymphatics, General Anatomy of the Lymphatics. G. Delamere and P. Poirier. $5.00. Keener.

Manual of Experimental Physiology. Winfield S. Hall. $2.75. Lea.

Physiologic Economy in Nutrition. Russell H. Chittenden. Frederick A. Stokes Co., New York.

Physiology and Pathology of the Urine, with Methods for Its Examination. J. Dixon Mann. $3.00. Lippincott.

Recent *Development of Physical* Science. William C. D. Whetham. $2.00. Blakiston.

Text-book of Human Physiology. Albert P. Brubaker. $4.00 Blakiston.

Text-book of Physiology. Isaac Ott. $3.00. Davis.

Practice of Medicine.

Arrhythmia of the Heart. K. F. Wenkenbach. $4.50. Keener.

Beri-beri; Its Symptoms and Symptomatic Treatment. Percy Netterville Gerrad. $1.00. Blakiston.

Clinical Cases of Cancer of the Breast. Cecil H. Leaf. 80 cents. Keener.

Clinical Lectures and Essays on Abdominal and Other Subjects. H. D. Rolleston. $1.50. Blakiston.

Diseases of the Intestines and Peritoneum. Herman Nothnagel. $5.00. Saunders.

Diseases of the *Liver, Gall Bladder and* Bile Ducts. H. D. Rolleston. $6.00. Saunders.

Disorders of Metabolism and Nutrition. Carl von Noorden. Part V—Saline Therapy. 75 cents. Treat.

Graves' Disease With and Without Exophthalmic Goiter. William Hanna Thompson. $1.50. Wood.

Laboratory Studies in Tropical Medicine. C. W. Daniels. $4.00. Blakiston.

Lectures Chiefly Clinical and Practical on Diseases of the Lungs and Heart. James A. Lindsay. $3.50. Wood.

Lectures to General Practitioners on Diseases of the Stomach and Intestines. Boardman Reed. $5.00. Treat.

New Methods of Treatment. J. Laumonier. $2.50. Keener.

Practical Guide to the Administration of Nauheim Treatment in Chronic Diseases of the Heart. L. Thorne. $1.00. Keener.

Principles of Relief. Edward T. Devine. Macmillan.

Short Treatise on Anti-typhoid Inoculation. A. Wright. $1.25. Keener.

System of Clinical Medicine. Thomas D. Savill. Vol. I and II. $4.50. Keener.

Treatment of Some Acute Visceral Inflammations. David B. Lees. $1.50. Blakiston.

Tuberculosis and Acute General Miliary Tuberculosis. G. Cornet. $5.00. Saunders.

Surgery.

Aseptic and Antiseptic Preparations and Treatment of Emergencies After Abdominal Surgical Operations. G. Wackerhagen. $1.00. E. R. Pelton, 19 E. 16th St., New York.

Case Teaching in Surgery. Herbert L. Burrell and John Bapst Blake. 75 cents. Blakiston.

Closure of Laparotomy Wounds as Practiced in Germany and Austria. Edited and translated by Walter H. Swaffield. Blakiston.

"First Aid" Hand Book. M. J. Shields, Carbondale, Pa. Published by the Office of Thomas Boundy, Jermyn, Pa.

Gallstones and Their Surgical Treatment. B. G. A. Moynihan. $4.00. Saunders.

Hand Book of Surgery. Frederick R. Griffith. $2.00. Saunders.

Handbook of Surgical Anatomy. G. A. Wright and C. H. Preston. $1.50. Blakiston.

Manual of Fever Nursing. Reynold Webb Wilcox. $1.00. Blakiston.

Manual of Intragastric Technique. George Herschell. $2.50. Keener.

Regional Minor Surgery. George Gray Van Schaick. $1.50. International Journal of Surgery Co., 100 William St., New York.

Surgery. A Manual for Students and Practitioners. M. D'Arcy Magee and Wallace Johnson. $1.00. Lea.

Surgery of the Diseases of the Appendix Vermiformis and Their Complications. W. H. Battle and E. M. Corner. $2.50. Keener.

Surgery of the Heart and Lungs. Benjamin Merrill Ricketts. $5.00. The Grafton Press, New York.

Surgical Anatomy of the Head and Neck. John B. Deaver. $12.00. Blakiston.

Surgical Emergencies. The Surgery of the Abdomen. Part 1. Bayard Holmes. $2.00. Appleton.

Surgical Treatment of Bright's Disease. George M. Edebohls. $2.00. Frank F. Lisiecki, New York.

System of Practical Surgery. By E. von Bergmann, P. von Bruns and J. von Mikulicz. Vol. I. Surgery of the Head. Vol. II. Surgery of the Neck, Thorax and Spinal Columns. Vol. III. Surgery of the Extremities. Vol. IV. Surgery of the Alimentary Tract. Vol. V. Surgery of the Pelvis and Genito-urinary Organs. $6.00 per volume. Lea.

Wounds in War. W. F. Stevenson. $5.00. Longman.

Publishers.

Below are the full names of the publishers to whom reference is made in an abbreviated manner.

D. Appleton & Co., 436 5th Ave., New York.
P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
A. S. Barnes & Co., 156 5th Ave., New York.
H. M. Caldwell Co., Boston.
Clinic Publishing Co., Ravenswood Station, Chicago.
The F. A. Davis Co., 1914 Cherry St., Philadelphia.
G. P. Engelhard & Co., 358 Dearborn St., Chicago.
Funk & Wagnalls, 44-60 E. 23d St., New York.
Hinds & Noble, 31 W. 15th St., New York.
W. T. Keener & Co., 90 Wabash Ave., Chicago.
Lea Bros. & Co., 706 Sansom St., Philadelphia.
J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Longmans, Green & Co., 91 5th Ave., New York.
The Macmillan Co., 66 5th Ave., New York.
Lewis S. Mathews & Co., 2623 Olive St., St. Louis.
G. P. Putnam's Sons, 27 W. 23d St., New York.
The Rebman Co., 70 W. 23d St., New York.
The Saalfield Publishing Co., Akron, Ohio.
W. B. Saunders & Co., 925 Walnut St., Philadelphia.
Snow & Farnham, Providence, R. I.
E. B. Treat & Co., 241 W. 23d St., New York.
D. Van Nostrand Co., New York.
John Wiley & Sons, 43 E. 19th St., New York.
Wm. Wood & Co., 51 5th Ave., New York.

State Boards of Registration.

COMING EXAMINATIONS.

Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Filip A. Forsbeck, M.D., Milwaukee.

State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Runyan, M.D., Little Rock.

Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.

Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

New Mexico Medical Board Can Not Examine.—Solicitor General G. W. Pritchard has given it as his opinion that the present medical-practice law in New Mexico does not authorize examinations. Therefore, an applicant who can not present satisfactory evidence that he is a graduate of a medical college in good standing can not be licensed. The opinion further upholds the right of the board to exercise discretion as to what colleges are "in good standing," taking into consideration clinical opportunities, etc.

Utah October Report.—Dr. R. W. Fisher, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, October, 1904. The number of subjects examined in was 20; total questions asked, 120; percentage required to pass, 75. The total number examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Chicago Homeo. Med. Coll	(1879)	85.8
Univ. of Colorado Med. Dept	(1904)	83.3
College of P. and S., Baltimore	(1904)	80.3
St. Louis Univ., Med. Dept	(1904)	76.7
Rush Medical College	(1900)	87.3
Univ. of Toronto, Canada	(1893)	88.7
Denver and Gross Med. Coll	(1903)	78.5
Tufts Med. Coll., Boston	(1904)	86.5
FAILED.		
American Med. Coll., St. Louis......(1885 67.3*,	(1898)	72.6
Coll. of Med. and Surg., Chicago	(1903)	72.6
Rush Medical College	(1903)	74

*Second examination.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 31, 1904:

Smart, Robert, asst.-surgeon, leave of absence extended fourteen days.

Hall, John D., asst.-surgeon general, relieved from duty in Philippine Division and ordered to proceed to San Francisco and report on arrival to the military secretary for further orders.

Jones, Percy L., asst.-surgeon, relieved from duty on transport *Sumner* and ordered to report at Medical Supply Depot, New York City for temporary duty, to examine medical supplies now being delivered at that depot.

Buck, Carroll D., asst.-surgeon, granted ten days' leave of absence on being relieved from duty with First Battalion Philippine Scouts, World's Fair Grounds, St. Louis, and Dec. 24, 1904, assignment to duty at Fort Des Moines, Iowa, changed to Fort Leavenworth, Kan.

Shook, Jay R., asst.-surgeon, relieved from duty at Fort Leavenworth, Kan., and ordered to Fort Des Moines, Iowa.

Brown, Henry D., contract surgeon, returned to Fort Worden, Wash., December 19, from leave of absence.

Freeman, Charles E., contract surgeon, assigned to temporary duty at the Depot of Recruits and Casuals, Fort McDowell, Angel Island, Cal.

Kellogg, Preston S., contract surgeon, returned to duty at Fort Robinson, Neb., December 18, from leave of absence.

Bell, Leonard P., and Hansen, Morris J., contract surgeons, returned to duty at San Francisco December 19 from leave of absence, and will sail for the Philippines December 31.

Lemmon, Robert, contract surgeon, ordered from Fort DuPont, Del., to Fort Terry, New York, for temporary duty, and on its completion, to his proper station, Fort McKinley, Me.

McMillan, Clemens W., contract surgeon, granted leave of absence for fifteen days about Jan. 10, 1905.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Dec. 31, 1904:

Grunwell, A. G., surgeon, detached from the *Dixie* and ordered to the Naval Hospital, New York, for treatment.

Ledbetter, R. E., P. A. surgeon, detached from the *Lancaster* and ordered to the *Dixie*.

Kennedy, J. T., P. A. surgeon ordered to the Naval Station, Guantanamo, Cuba, and to additional duty on the *Amphitrite*.

Page, J. E., P. A. surgeon, ordered to the *Lancaster*.

Means, V. C. B., surgeon, ordered to the Naval Hospital, Philadelphia.

Bell, W. L., P. A. surgeon, when discharged from treatment at the Naval Hospital, New York, ordered home and granted sick leave for three months.

Janney, W. H., A. A. surgeon, detached from the *Marcellus* and ordered to the *Cæsar*.

Grove, W. B., surgeon, detached from the *Atlanta* and ordered home to wait orders.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Dec. 28, 1904:

Smith, A. C., surgeon, detailed as inspector of unserviceable property at Camp Hutton, La.

Rosenau, M. J., P. A. surgeon, detailed to represent the Service at the Second Annual Mosquito Exterminating Convention, New York, Dec. 16-17, 1904. Detailed to represent the Service at the annual meeting of the Society of American Bacteriologists at Philadelphia, Dec. 27-28, 1904.

Von Ezdorf, R. H., P. A. surgeon, to report in person to Rear Admiral Walker, U. S. N., for duty in connection with quarantine in the Isthmian Canal Zone, Republic of Panama.

McClintic, T. B., P. A. surgeon, granted leave of absence for five days from Dec. 27, 1904, under Paragraph 191 of the Regulations.

Korn, W. A., P. A. surgeon, granted leave of absence for seven days.

Berry, T. D., asst.-surgeon, to proceed to Perth Amboy, N. J., and assume temporary charge of Service during absence on leave of P. A. Surgeon W. A. Korn.

Salmon, T. W., asst.-surgeon, to report at the Bureau, Washington, D. C., for special temporary duty.

BOARD CONVENED.

Board convened to meet at the Hygienic Laboratory, Washington, D. C., on call of the chairman, for the examination and marking of applications for appointment as technical assistants in zoology, chemistry and pharmacology. Detail for the board: P. A. Surgeon M. J. Rosenau, Director of Hygienic Laboratory, chairman; Ch. Wardell Stiles, Chief of Division of Zoology; Reid Hunt, Chief of Division of Pharmacology, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Dec. 30, 1904:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Dec. 17-24, 1 case.

Illinois: Chicago, Dec. 17-24, 20 cases, 1 death; Springfield, Nov. 28-Dec. 21, 5 cases.

Kentucky: Louisville, Dec. 15-22, 1 case.

Louisiana: New Orleans, Dec. 18-24, 7 cases, 4 imported.

Michigan: At 70 localities, Dec. 10-17, present.

Minnesota: Meeker Co., Dec. 21-19, 1 case; Dec. 12-19, Otter Tail Co., 1 case; Rice Co., 12 cases; Wilkin Co., 1 case.

New Jersey: Camden, Dec. 18-24, 1 case.

New York: New York City, Dec. 18-24, 1 case.

Ohio: Cincinnati, Dec. 16-23, 2 cases.

Pennsylvania: Dec. 17-24, Johnstown, 1 case; Philadelphia, 1 case.

South Carolina: Charleston, Dec. 10-17, 2 cases.

Tennessee: Nashville, Dec. 17-24, 4 cases.

Washington: Nov. 1-30, Pierce Co. (including Tacoma), 2 cases; Walla Walla Co., 5 cases; Seattle, 1 case.

Wisconsin: Milwaukee, Dec. 10 24, 40 cases.

SMALLPOX—FOREIGN.

Argentina: Bahia Blanca, Nov. 18, present; Buenos Ayres, Sept. 1-30, 22 deaths.

Austria: Prague, Nov. 26-Dec. 3, 18 cases.

Brazil: Bahia, Nov. 12-26, 28 deaths; Rio de Janeiro, Nov. 6-27, 373 cases, 160 deaths.

Ecuador: Guayaquil, Nov. 30-Dec. 7, 3 deaths.

France: Lyon, Nov. 20-Dec. 3, 1 case; Paris, Dec. 3-10, 9 cases.

Great Britain: Glasgow, Dec. 8-16, 2 cases; London, Nov. 26-Dec. 10, 3 cases; Dec. 3-10, Newcastle-on-Tyne, 21 cases; Nottingham, 3 cases; South Shields, 2 cases.

India: Bombay Nov. 22-29, 5 deaths; Calcutta, Nov. 19-26, 2 cases.

Italy: Palermo, Nov. 26-Dec. 10, 33 cases, 15 deaths.

Russia: Odessa, Nov. 26-Dec. 3, 1 case.

Turkey: Constantinople, Nov. 27-Dec. 4, 15 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Nov. 25-Dec. 7, 3 deaths, 1 case on S. S. *Limari* at Puna from Panama.

Mexico: Coatzacoalcos, Dec. 10-17, 2 cases; Juchitan, Dec. 11-17, 1 case.

Panama: Panama, Dec. 12-19, 3 cases.

Medical Organization.

ORGANIZATION WORK NEEDED IN KANSAS.

J. N. McCormack, M.D.

CHAIRMAN OF THE COMMITTEE ON ORGANIZATION.
BOWLING GREEN, KY.

Although a majority of the physicians met by me in Kansas compare favorably with their brethren in the older states, and in spite of the fact that 800 of the 2,600 physicians are enrolled as members of the state society, outside of Wichita, where an excellent city society has existed for two years, the profession is practically unorganized in every section visited by me.

There are the usual local dissensions in most sections, but the condition most noticeable and most impressive to a stranger is the almost universal and absolute indifference to every professional interest which is not strictly and immediately personal. As would be expected from the foregoing statements, all the evils of commercialism are pronounced in such sections, including rate-cutting, commissions by surgeons, and the various questionable methods of securing practice, associated, as these evils always are in my experience, with a lack of financial prosperity in the rank and file of the profession, in striking contrast to the commercial wealth of the country. In some rich towns and counties one could not but be impressed with the idea that the country is developing more rapidly than the profession, and that systematic postgraduate work and a general awakening are necessary for the good of both the profession and the public.

District societies, overlapping each other in every direction, and supported by a few of the best men, had formerly assumed proportions not found elsewhere, all of them doing really excellent work, but none of them reaching, interesting nor benefiting the mass of the profession. Until two years ago some of these were as large as the state society—which, before that time, was practically confined to the northeastern section of the state—and were organized and run in a spirit of more or less distinct rivalry and antagonism to that body. Add to this the fact that there has been no co-operation between the State Board of Medical Examiners and the State Board of Health and the State Medical Society, that the officers and members of these boards, who should be selected, or at least nominated to the appointing power, by the organized profession, as its executive agents, seldom even attend the meetings of the society, and that the officers of the latter body have heretofore done little more than to issue a program for, and to perform the routine duties incident to, the annual meeting, with no real county societies anywhere, and there will be little difficulty in accounting for existing conditions.

What is needed in Kansas is zealous, personal, self-sacrificing labor, not only on the part of the councilors and of the other officials of the state society, but of all who can be induced to assist them from Topeka, Wichita, Kansas City, Hutchison and elsewhere, until a real, live society exists in every county containing five or six physicians, to make a practical study of and to promote the interests of every member and citizen of the jurisdiction.

First, the president and secretary of the state society need to wake up to the importance of their positions, as similar officers have done in other states, and to assist and to encourage the councilors in the onerous and difficult duties so that they may be able to complete the tasks set for them before the next meeting. The state journal is doing excellent work, and Dr. Furst has accomplished much in his district, but most of the other councilors have done practically nothing. I found that they had expected to organize county societies by a desultory correspondence and were despondent because they had had less tangible results than children usually do who send letters up the chimney to Santa Claus before Christmas. Such an organization as is demanded by the best interests of the profession and of humanity involves intelligent thought, labor and expense on the part of those charged with the duty. My meetings were well attended considering the short and imperfect notice it was possible to give, and the interest and enthusiasm manifested everywhere indicated that the profession was ripe for a real reform, if those chosen to lead the movement can be induced to put some spirit into their work and push into effect the comprehensive methods which have proven so effective elsewhere.

The great natural wealth of Kansas, and the rapid encroachment being made on the arid sections by cultivation and tree growth, must make it one of the foremost states in the union. Although often there before, this was impressed on me more forcibly during this trip, traveling chiefly in the daytime, and often riding for hundreds of miles over fertile plains stretching out to the sky-line as rich as the famous Blue Grass regions. With proper organization, possible only through such a system of local societies as will bring the physicians of each community into fellowship and co-operation for their own and the public good, the future of the medical profession is as promising as that of the country.

IN MISSOURI.

My western trip ended with a meeting at Kansas City in the evening of December 2. Although a meeting called on short notice, with limited information as to its purpose, the attendance, and more especially the active and appreciative spirit with which the work was taken up, admirably indicated the influence which a good society, holding weekly meetings, will exert in any community. In the frank discussion which followed my talk it was shown that, while there is much to be done in that city even locally, so much has already been done, and the personal relations and enthusiasm in the large, active working force are such that anything is possible of accomplishment by a more extensive and searching utilization of the forces at the command of the profession. Both the city and state are overrun with quackery to an unusual degree, and my information is that professional conditions are bad in many counties in Missouri, but if St. Louis and St. Joseph will join hands with Kansas City and with the officers and councilors of the state association in earnest work, the foundation can be laid for remedying all of these evils before the next annual meeting.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

The President, Dr. Charles H. Mayo, Rochester, Minn., in the Chair.

Officers Elected.

President, Dr. H. D. Niles, Salt Lake City, Utah; vice-presidents, Drs. E. Wyllys Andrews, Chicago, and W. W. Grant, Denver; secretary-treasurer, Dr. B. B. Davis, Omaha.

Kansas City, Mo., was selected as the place of meeting in 1905, with Dr. H. C. Crowell as chairman of the committee of arrangements.

Stone in the Kidney.

DR. A. L. WRIGHT, Carroll, Iowa, drew the following conclusions:

1. Kidney stone may occur at any time of life, from the earliest to ripe old age. 2. These stones are the most frequent, and give rise to the greatest amount of suffering of any form of surgical disease of the kidney. The clinical manifestations of kidney stone do not depend on its size. A small stone, just large enough to prevent its escape, and composed of oxalate of lime, will cause more suffering and damage to the kidney parenchyma than a very much larger deposit of softer formation, as well as completely disable the patient while the destructive changes are taking place, although the clinical symptoms are not intensely active. 3. While generally unilateral, stone occasionally occurs in both kidneys, or the reflex symptoms may point most prominently to the sound kidney, the stone being found not infrequently on the side free from pain. 4. Diagnosis is not difficult in the typical cases, but the stone remaining quiescent in some for an indefinite period makes recognition almost impossible. 5. Owing to the fact that kidney stone may put on the livery of infectious diseases, the diagnosis is difficult, if not impossible, in those cases where the classical symptoms are absent. 6. There are few diseases of the kidney more certainly fatal, when left to themselves, and more successfully treated when encountered by proper surgical interference, arresting the destructive changes taking place in the kidney, and restoring the viscus to its physiological functions.

DISCUSSION.

DR. ALEX. HUGH FERGUSON, Chicago, said that pain is sometimes very deceptive. It is both local and referred: local in the region of the kidney itself, and referred to different parts of the body, chiefly along the genito-urinary tract toward the testicle; sometimes toward the midline of the abdomen; at other times toward the ensiform cartilage in the region of the gall bladder and duodenum, and not infrequently it is referred to the back. Pain is caused in nearly all cases at first, when there is no septic urine, by stretching of the pelvis of the kidney and of the kidney tissue, the calices, etc. A quiescent stone does not always cause colic, although it frequently gives rise to referred pain. In the diagnosis one should consider tumor of the kidney, recurrent attacks of interstitial nephritis, and tuberculosis of the kidney. The *x*-ray is one of the best diagnostic aids. Dr. Ferguson called attention to the dangers incident to the passage of such instruments as the segregator, cystoscope, etc.

DR. W. D. HAINES said he had made over two thousand autopsies, and in about 50 per cent. of the cases he found stones of variable sizes in the kidney. In those few cases in which the history could be traced, it was surprising to find how infrequently symptoms referable to the kidney were complained of. In treating these cases surgically, one of the principal things to determine is the presence of a kidney on the opposite side.

DR. WRIGHT maintained that the pain is inflammatory in character, and is not due to stretching of the kidney tissue. Many kidneys are opened, where the clinical manifestations indicate the existence of stone, but none is found, except possibly a little debris. Furthermore, where the deposit consists of oxalate of lime, the pain is very excruciating. The stone is too large to engage in the ureter, but not large enough, however, to stretch the pelvis or parenchyma of the kidney, or to produce any stretching effect whatever. He believes the same is true of kidney stone as of gallstone, the pain not being due to the passage of the stone, but to an inflammatory reaction. When such kidneys are opened and drained, relief is prompt, even when no stone or stones are found.

Newer Aids to Diagnosis in Diseases of the Urinary Tract.

DR. M. L. HARRIS, Chicago, arranged the newer aids to diagnosis in diseases of the urinary tract in the following order, according to their value: (1) The cystoscope. (2) Ureteral catheterization or segregation, with comparative analyses of the separate urines. (3) The *x*-ray. (4) The phloridzin test. (5) Comparative cryoscopy of the separate urines. (6) Cryoscopy of the blood, with the necessary corrections made.

DISCUSSION.

DR. B. B. DAVIS asked whether the essayist had observed temporary anuria in any of the cases, enough to interfere materially with the value of the test. Dr. Davis related a case in which temporary anuria followed the use of the segregator.

DR. HARRIS said he had observed temporary anuria in a number of instances, lasting sometimes a few minutes, sometimes ten or fifteen minutes, and sometimes as long as thirty or forty minutes, but how long it would have lasted had the examination been continued he does not know. Temporary anuria, however, is exceptional. He has also seen temporary anuria follow the introduction of the ureteral catheter, lasting for several hours, or until the catheter was withdrawn.

Methods of Exploring the Abdomen, and a New One.

DR. ALEX. HUGH FERGUSON, Chicago, stated that in the daily round of work the surgeon meets cases requiring colpotomy, anterior or posterior, to remove myomata, or cysts, and that these cases often give a history of stomach, gallbladder, kidney or bowel disturbances. An examination of the abdominal organs is highly satisfactory, although oftentimes one hardly feels justified in opening through the abdominal wall for that purpose. The problem is solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose it is imperative to cut through the mucous membrane of the vagina its whole length on each side postlaterally. The mucous membrane being severed, the other structures will stretch at once. The bare arm, being smeared over with sterile vaselin, glides in with ease. He has within the last three years passed his hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, after detecting gallstones, he cut down upon the gall bladder and pushed it, full of biliary calculi, through a buttonhole incision in the abdominal wall. In another case, a cancer of the rectum, he passed his hand and detected cancer of the liver and gall bladder. In a third case the vaginal outlet was so small that a digital examination could not be made without an anesthetic. He found cancer of the posterior lip of the cervix. He passed his hand through an anterior colpotomy, after having slit the vagina on each side, and found a hard tumor, evidently cancerous, on the anterior surface of the stomach. The lymphatics were also extensively invaded.

DISCUSSION.

DR. R. C. COFFEY asked under what circumstances the essayist would make such an exploration as he had described, inasmuch as the vagina can not be thoroughtly sterilized, and since an abdominal incision is fraught with so little danger.

DR. A. L. WRIGHT spoke disparagingly of this method of exploration. He questioned the possibility of being able to render the vagina aseptic. The method impressed him as being much more formidable, and attended with more danger than an abdominal incision.

DR. C. O. THIENHAUS called attention to the method employed by Ott, who introduces an electric light through the vagina into the abdomen, at the same time using one on his forehead, with which he can explore the abdominal cavity and see diseases with the eye which can not possibly be diagnosed otherwise, and are dealt with accordingly.

Peritoneal Adhesions, Their Cause and Prevention.

Dr. Arthur E. Hertzler, Kansas City, Mo., studied peritoneal adhesions by means of a small glass window sewed into the lateral abdominal wall of an animal. Peritoneal surfaces may agglutinate without a destruction of the endothelial layer. In true adhesions the endothelial layers are always destroyed. If the basement membrane is not destroyed, the adhesions may separate after a time. If the basement membrane is destroyed, the union is formed by a true growth of fibrous tissue, and is permanent. Ordinary adhesions are formed by fibrin formation, with a loosening of the cement substance of the basement membrane, and an interlacing of the fibers forming the basement layer. This forms in from twelve to eighteen hours. The formation of peritoneal adhesions depends on the same factors as does blood coagulation. The irritation of the surface destroys the endothelium, permitting the escape of fibrinogen-forming fluid. The CaCl is abundant immediately below the endothelial cells, as may be demonstrated with silver nitrate. The escape of the leucocytes from the vessels activates the proferment, and makes it active. The precipitate of fibrin thus formed is identical with that formed in blood coagulation, as may be demonstrated by the fact that those factors which prevent coagulation also prevent peritoneal adhesions. The agents most employed are phosphorus and peptone. The former prevents the formation of adhesions by destroying the fibrinogen, the latter by acting on an antiferment. The presence of a digestive ferment in the upper intestinal tract explains why adhesions form less readily in spontaneous perforations in this region.

(To be continued.)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Continued from page 1988 of last volume.)

Unveiling Exercises.

The monument erected by the association to its founder, the late Dr. W. E. B. Davis, was unveiled in Capitol Park with fitting ceremonies, December 14, at 11 o'clock, in the presence of about 5,000 people, including the members of the association. After an invocation by Rev. Dr. L. S. Handley, Dr. Charles M. Rosser of Dallas, Texas, was introduced and delivered the address of presentation of the statue. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the beloved physician. Dr. R. M. Cunningham, acting governor of the state of Alabama, accepted the statue in behalf of the state in an eloquent address in which he paid a glowing tribute to this great physician. The statue, in behalf of the city of Birmingham, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

A Method of Uniting Intestines of Very Small or of Unequal Caliber.

Dr. J. Shelton Horsley, Richmond, Va., said that modifications of sutures may be divided into two general classes, the continuous and the interrupted. Taking it for granted that each suture penetrates all coats of the intestines, he demonstrated experimentally that the continuous suture more nearly fulfills the ideal conditions for intestinal healing than the interrupted suture. Serous surfaces unite after being sutured, on account of the hyperemia of repair, and this is dependent on some slight injury to the peritoneum. In the case of an interrupted suture, union is obtained within the bite of the suture, by hyperemia caused by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures the pressure from thin intestinal tissues is practically *nil*, so union depends solely on extension of this hyperemia, and if this process does not extend from one stitch to another, leakage will surely occur. If continuous and moderate pressure is made on two serous surfaces, sufficient injury will be done those surfaces to cause adhesions. This continuous pressure along the entire margin of an intestinal wound can be obtained only by the continuous suture.

He described nine experiments in which an area of intestine was included between two lines of sutures. In only four of these did the whole area between the rows of sutures unite, demonstrating that something beside mere approximation of serous surfaces is necessary for satisfactory union. The intestinal ends to be united are placed side by side with their convex borders in contact and clamped with a hemostatic forceps. Then he uses a suture that passes through the whole of the intestinal wall, sewing together with a continuous stitch a crescentic area excised; then, changing the stitch to a Cushing right-angled continuous suture penetrating all the coats and invaginating the remaining margins of the wound. When the first knot is reached in the suture, it is invaginated, and the suture continued by two or more insertions of the needle; with the last two insertions as secure a hold as possible is obtained without penetrating the mucosa. The very last insertion of the needle is in the reverse direction of the other insertions, so that when the knot is tied it is partly buried. The bowel is then returned to its natural position, and the mesentery sewed up with continuous stitches.

DISCUSSION.

Dr. W. P. Carr, Washington, D. C., stated that the holding of the bowel with a clamp, a rubber ligature, or tape to prevent the escape of intestinal contents during operation is the only part of intestinal suture that seems not to be as perfect as it might be. There is more or less danger of injuring the bowel by a clamp or ligature which is put around it tight enough to prevent the intestinal contents from escaping. The Murphy button or any form of clamp might possibly do this at times, particularly if the bowel is already more or less inflamed at the time of operation. He thinks it is better to have an assistant hold the bowel with the fingers when this is possible, although it facilitates the operation very much to take the bowel in a long clamp not far from the point where it is going to be sutured, as it prevents the sliding of the coats of the bowel over each other.

Dr. Herman J. Boldt, New York City, prefers suturing to using buttons or mechanical devices.

Dr. J. M. T. Finney, Baltimore, has found that there are certain technical difficulties to the end-to-end suture which are hard to overcome. For example, at the mesenteric border it is difficult to obtain satisfactory union; there is so much likelihood that a leak will occur there, that it has been his practice for the last two years to use, almost exclusively, lateral anastomosis, closing both ends. This gives more satisfactory union. He advocates the interrupted suture.

Dr. A. Palmer Dudley, New York City, uses the continuous suture and has obtained good results.

Dr. W. S. Goldsmith, Atlanta, Ga., believes that in placing continuous sutures around the bowel, where there is likely to be distention, leakage may result, and a fistula be produced by tissue necrosis incident to bowel distention on account of the application of this ligature. He prefers the interrupted suture, although not so rapid for use, thus minimizing the pressure owing to distention or dilatation of the gut.

Dr. Samuel J. Mixter, Boston, said that the continuous suture is quicker. He emphasized the necessity of everybody practicing these operations on lower animals before doing them on patients. Every new method should be tried on the lower animals. He thinks very little clamping is necessary, even if there is some leakage. He does not consider that there is any great danger from septic peritonitis following, because the peritoneum is able to stand a great deal of soiling without much damage, and it can be washed off without producing any ill-effects. This is likewise true of operations on the stomach.

The Abuse of Purgatives Before and After Abdominal Section.

Dr. I. S. Stone, Washington, D. C., said that purgatives should be given as evacuants and should not produce hypercatharsis, whether administered before or after abdominal section. The excessive purgation hypercatharsis commonly employed is intended not only to empty the bowels, but to perform additional service, namely, to remove collections of serum or other fluids which may be in the peritoneal cavity.

A large majority of the sections made at the present time may be called minor pelvic or minor abdominal. In these no infection exists nor is the intestine in any way involved. Such cases require only the mildest evacuants, with sterile diet in the preliminary treatment. Vomiting, paresis, ileus, and excessive distension of the abdomen after operation are frequently exaggerated and aggravated by the administration of the worse than useless cathartics which are usually given. No remedy has been discovered for vomiting due to anesthesia, and this fact should interdict the annoyance given patients by using purgatives before normal peristalsis has been restored. The only remedy of value for vomiting is the regulation of stomach contents, both as to character and quality of substances ingested. It has been shown that patients have bowel movements after surgical operations because they are ready to act rather than because one has found any method to produce such results. Hypercatharsis does more than anything short of venesection, or the use of dangerous heart depressants, to unfit patients for prolonged anesthesia and operations. The prompt administration of purgatives after operation appears to cause vomiting and reversed peristalsis, and adds to the general discomfort of the patient. If the intestines are not actually scoured by catharsis and have only been fairly well emptied of excess of gas and fecal matter, they will respond to treatment after operation with far greater ease than when made absolutely empty.

A Review of the Treatment Immediately Before and After Abdominal Section.

Dr. L. S. McMurtry, Louisville, said that the general indications for preparatory treatment in cases of abdominal section were to cleanse the alimentary canal thoroughly without violent disturbance or exhaustion, to put all the eliminative functions in the best possible condition, and to favor in every way a tranquil state of mind and body. More than a year ago he became satisfied that to put the patient to bed for three days, or even longer, as was practiced by many, was not the best course of preparatory treatment. There is a positive advantage in having the bowels cleaned out in a relatively short time, as the patient is not relaxed by purgation and is less prone to suffer from toxic changes. Prolonged and irritating catharsis increases the nausea and vomiting of ether and of chloroform anesthesia. A prolonged period of preparatory treatment impairs the patient's strength and depresses the nervous system.

In the cleansing and disinfection of the skin we must accept at the outset the established fact that sterilization of the skin from a bacteriologic standard is impossible; yet mechanical cleansing will, for all practical purposes, free the skin of all active germ action and provide for immediate primary union of wounds. In the effort to accomplish this the important fact has been overlooked that the unbroken skin is endowed with a power of resistance to the activity of its own and other germs, and when the epidermis is cracked, denuded and broken by irritating germicides and scrubbing with hard brushes, this natural resistance is impaired and infection occurs. Mechanical cleansing will remove germs readily from smooth and unbroken cutaneous surfaces. For these reasons the brush and chemical germicides should be discarded and only soap and water and alcohol should be used, applying these with gauze instead of the brush.

In the after-treatment only the most simple course is necessary in average cases. The routine use of purgatives is to be avoided. The patient should be allowed to move about in bed freely, and should be given water as soon after operation as it can be retained.

The Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, Etc.

Dr. William P. Nicolson, Atlanta, Ga., summarized this subject as follows: 1. Celluloid is safe and does not add any extra risk to the operation. 2. It not only removes the pressure and irritation which the surgeon is endeavoring to combat, but by its resistance prevents a recurrence from the subsequent consolidation of the coverings in a false position due to atmospheric pressure. 3. It protects the patient from external influences, and not only makes him feel safer, but he is actually safer. 4. It enables surgeons to be much more untrammeled in the amount of bone that they can remove. 5. It prevents deformity, which especially, when beyond the hair line, is necessarily great in large bone removals.

Traumatic Synovitis of the Knee Joint.

Dr. Edward A. Balloch, Washington, D. C., cited illustrative cases showing the advantages of early operative intervention, after which he drew the following conclusions: 1. In most, if not all, cases of traumatic arthritis of the knee there is an injury to some of the structures of the joint. 2. Conservative measures should not be persisted in too long. Three weeks was proposed as a fair length of time for a trial of these measures. If no improvement is manifest at the end of that time, the propriety of operative intervention should be considered. 3. Arthrotomy, properly performed, is not an essentially dangerous procedure and may do great good. 4. Early operative intervention will give a greater proportion of useful joints in a shorter space of time than will any other method.

Cases in Which Early Diagnosis of Cancer of the Uterus Was Made.

Dr. Rufus B. Hall, Cincinnati, said that of the many cases of cancer of the body of the uterus coming under his observation only two cases, which he reported in his paper, were seen early enough to make a diagnosis while the disease was limited to a very small area. Adenocarcinoma was found to be the variety of the disease in each case. He believes that the disease can be diagnosed in its incipiency if surgeons systematically curette every suspicious case and make repeated microscopic examinations of the scrapings removed from the uterus until they confirm or disprove the presence of malignant disease.

A Contribution to the Origin of Adenomyoma of the Uterus.

Dr. J. Whitridge Williams, Baltimore, after calling attention to the anatomic appearance of adenomyomata of the uterus, and to the various theories which have been advanced according to the origin of the epithelial structures contained in them, described a uterus removed at autopsy from a woman who died just after delivery as the result of hemorrhage from placenta previa. At the time of its removal the uterus apparently presented the characteristic appearance of the organ immediately following delivery, except that the area of placental attachment covered two-thirds of its interior, instead of being more circumscribed and limited to the anterior or posterior wall, thus indicating in all probability that interference with its blood supply had led to a much more extensive implantation of the placenta than usual.

On making a sagittal section through the uterus after hardening, numerous irregularly shaped, more or less oval areas, of a dull white appearance, and varying from a millimeter in diameter to structures 5 by 10 mm. in their various dimensions, could be seen throughout the entire thickness of the uterine walls, which measured 3 cm. in their thickest parts. These areas were most abundant immediately beneath the endometrium, but could be traced outward through the entire thickness of the uterine wall to its peritoneal covering. On microscopic examination they were found to consist of typical decidual tissue, which was made up of the characteristic decidual cells and glandular spaces lined by cuboidal epithelium. Dr. Williams stated that, so far as he could ascertain, this is the first case in which such a distribution of decidual tissue has been observed, and then discussed the importance of such an observation in contributing toward determining the derivation of the epithelial structures contained in adenomyomata. He referred briefly to the literature on the histogenesis of adenomyomata and pointed out that while the vast majority of such growths are clearly derived from Muellerian tissue, conclusive evidence against the Wolffian body origin of certain cases has not yet been and probably never can be adduced.

Development of Fibroids of the Uterus After Ablation of the Appendages.

Dr. J. Wesley Bovée, Washington, D. C., stated that the large number of published cases of fibroid tumors that have undergone malignant degeneration, or that have broken down, become infected, or undergone other changes in structure detrimental to the lives of their unfortunate possessors, have swept away the old ideas as to their benignancy, and that pathologists are now searching for a distinct borderline between benign and malignant soft uterine myomata. Recurrent myomata, while not so dangerous as cancer, must be considered malignant. Between these and sarcomata there is not always a distinct difference. Dr. Bovée cited five cases, and of these two were operated on for non-infectious disease, two were victims of infection and in one a condition requiring the removal of the appendages was not known.

In considering the changes in the uterus after ablation of the appendages, Dr. Bovée quoted the experimental work on lower animals of Hunter Robb and others, and said that from these experiments and investigations one can find but one theory on which to base a cause for the development of fibroids after double salpingo-oöphorectomy. This is the endarteritis obliterans noted by Benckeiser.

The Effect of Suspension of the Uterus on Pregnancy and Labor.

Dr. Joseph Taber Johnson, Washington, D. C., contended that very few, if any, such injurious effects need be feared as have been frequently charged against this operation. In over 100 suspensions done by himself he only knows of two pregnancies. These were both normal. In one case the labor was so rapid that the child was born before the physician's arrival, and he knows from recent examinations that there has been no return of the retroversion. The other case he delivered in November last after a five hours' normal labor, without chloroform or forceps.

Typhoid Fever and Appendicitis.

Dr. John C. Oliver. Cincinnati, draws the following conclusions: 1. That typhoid ulcers may appear in the glandular structures of the appendix and give rise to a typhoid appendicitis. 2. That the infiltration of the ileum and cecum in typhoid fever may be so great as to give rise to a distinct tumor mass in the right iliac fossa. 3. That the Widal test is of but little, if any, value in the early diagnosis of the disease present. 4. That the leucocyte count proved in his series of cases to be of value in distinguishing between the two diseases. 5. That an exploratory laparotomy in typhoid fever is not devoid of danger. 6. That abdominal incision is imperative when it becomes necessary to establish the differential diagnosis between a typhoid perforation and fulminant appendicitis. 7. That in the absence of perforation cases of typhoid appendicitis should not be operated on.

Gynecologic Problems.

Dr. P. F. Chambers, New York City, read a paper in which he pointed out the problems presented to the gynecologist twenty-five years ago and to-day.

The Management of Acute General Peritonitis.

Dr. J. Garland Sherrill, Louisville, Ky., considered two forms of infection: First, acute septic peritonitis; second, general suppurative peritonitis. The various methods of medical treatment were considered, and the position taken that these cases are surgical, except where operation is refused and the patient's condition will not permit of surgical interference.

In considering the surgical treatment he placed much stress on early operation for the prevention of general peritonitis while the process is yet localized. The outcome of a given case will depend on the following factors: 1, the virulence of the infection; 2, the quantity of the infecting medium; 3, the resistance of the patient; 4, the activity of the organs of elimination; 5, the time at which the patient comes to operation; 6, the rapidity and thoroughness of the surgical procedure.

Dr. Sherrill considers that the special technic of the operation is of less importance than the dexterity of the surgeon and the care with which he does his work. He finds that by flushing he can best free the peritoneum of infectious material, and usually drains. The patient should have the usual treatment given all abdominal cases.

Some Further Advances in Renal Surgery.

Dr. John B. Murphy, Chicago, made a forcible plea for more conservative surgical work on the kidneys and ureters in the future, saying that surgeons must consider the importance of preserving any portion of a kidney that is still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past following the removal of a kidney that was secreting practically the normal amount of urine varied from 29 to 35 per cent. He reported six cases of operations on the kidney. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than, the kidney itself. In cases of great dilatation of the pelvis of the kidney it was his custom to remove the kidney until he realized that it was practically a normally secreting organ and that the dilatation of the pelvis is due to ureteral obstruction, and that there is no good reason for taking out a kidney when the sac is removed, regardless of the position of attachment of the ureter to the sac, as this varies in every case. He believes in connection with surgery of the kidney that surgeons are approaching a time when they will examine the kidney carefully and cautiously and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining part husbanded.

Vesical Diverticula Requiring Operation.

Dr. Hugh H. Young, Baltimore, stated that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticula, and hydroureter and hydropelvis resulted. The patient died of uremia. Since then he has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two cases the diverticula were larger than an orange, in the others smaller.

His four patients are all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided and no fistulæ resulted.

The Ultimate Results Obtained by Conservative Perineal Prostatectomy in Seventy-Five Cases.

Dr. Young also read this paper. In this series there were 5 cases over 80 years of age, one 87 years of age, with one death five weeks after the operation in a man aged 84. Two other deaths, neither attributable to the operation, occurred, each in the third week, one, in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man 77 years of age who had been uremic for several weeks, and autopsy showed double pyo-hydro-nephrosis. The harmlessness of the operation was thus shown.

When Shall We Resect in Tuberculous Disease of the Joints?

Dr. C. H. Caldwell, Cincinnati, in a paper on this subject, stated that his judgment as to the advisability of resection in a given case of tuberculous joint disease would be influenced by many considerations. A single tuberculous focus in the epiphysis of a long bone, which is susceptible of complete immobilization, stands a much better chance of undergoing reparative change than will such a focus in the spongy bones of the wrist, in the close proximity of synovial and ligamentous structures which favor dissemination and persistence of the disease. The conservative treatment of joints was discussed at considerable length and was divided into three classes—ideal, satisfactory and unsatisfactory.

The results from the resection of the hip are of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur, one leaves no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. In tuberculosis of the knee one is confronted with an entirely different problem. There is but little use of wasting time with a knee joint in which marked osseous changes are already present, and which, in spite of conservative treatment over a period of six months, has shown no improvement. Resection of the knee in cases which have passed the period of adolescence has much to recommend it and but little can be said against it. In those cases long delay often means amputation. As to resection in elbow cases, one is again confronted with the fact that results are at the best far from what one may desire. In the wrist and carpal joints excision depends on individual judgment. Ankle joint and tarsal excisions are, as a rule, very unsatisfactory. The deficiency in weight-bearing capacity renders the result far from gratifying and amputation is, so far as his observation goes, too frequent a sequel to these operations. Several skiagrams were exhibited illustrating tuberculous joints and the results of resections.

Obliteration of the Stomach by Caustic.

Dr. Samuel J. Mixter, Boston, stated that doubtless other surgeons have seen cases of constriction of the esophagus after the ingestion of acid or of strong alkalies, and also cases of constriction of the pylorus from the same cause. It is very rare, however, to find practically the whole stomach destroyed. He reported three cases in which the stomach was almost entirely obliterated by caustics.

Vaginal Cesarean Section.

Dr. C. Jeff Miller, New Orleans, reported a case and summed up the advantages of the method as follows: 1. In severe eclampsia, when the woman is unconscious between the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators for manual dilatation. 2. In severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of accouchement forcé, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised. 3. It may be considered in other conditions where cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation in that the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operation. 4. It is not more dangerous than attempting to deliver either by version or by forceps, when the os is not fully dilated, if done under strict aseptic precautions.

Dermoid Cysts and Fistulae of the Sacrococcygeal Region.

Dr. Lewis C. Bosher, Richmond, Va., has operated on seven cases of dermoid cysts for fistulæ of the sacrococcygeal region. After referring to the diagnosis and prognosis, he says that the usual methods resorted to for treating inflammatory fistulous tracts will seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It is to be noted that this is not always possible, as in a case reported in the literature by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

Hematoma of the Ovary.

Dr. Magnus A. Tate, Cincinnati, presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematoma of the ovary: First, before or during birth; second, at or near the first menstrual flow; third, early adult or child-bearing period. The age of child-bearing women who are afflicted with hematoma of the ovaries varies from 15 to 40 years, and the left ovary seems to be more frequently affected than the right.

Pathogenesis and Surgical Treatment of Tubercular Peritonitis.

Dr. William E. Stokes, Salisbury, N. C., after dwelling on the pathogenesis of this disease, divided it into four forms—the adhesive, suppurative, tympanitic and ascitic. He quoted extensively from the literature of the subject, referred to the modes of infection, reported a series of cases occurring in his own practice, and spoke of the importance of histologic examinations.

Tracheotomy for Gunshot Wounds of the Trachea.

Dr. J. McFadden Gaston, Atlanta, Ga., discussed the subject of gunshot wounds of the trachea, and the complications that are likely to occur from septic infection or from laryngeal stenosis. He reported a case of gunshot wound of the trachea in a child 8 years of age. The position of the incision in the trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

Rupture of the Diaphragm.

Dr. George S. Brown, Birmingham, Ala., read a paper on this subject and reported an interesting and instructive case in a fireman, 27 years of age, six feet tall, whose weight was 190 pounds. The patient had hurt or strained his side slightly about two years before the rupture of the diaphragm occurred. Although an operation was performed, the case terminated fatally.

The following papers were also read: Dr. J. A. Goggans, Alexander City, Ala., "Report of Two Cases of Tumor of the Pancreas"; Dr. Herman J. Boldt, New York City, "Treatment of Uterine Bleeding"; Dr. W. H. Doughty, Augusta, Ga., "Suprapubic Prostatectomy"; Dr. W. D. Haggard, Nashville, Tenn., "Encephalo-Meningocele." Dr. Haggard also described an easy method of instituting peritoneal gauze drainage through the cul-de-sac. Dr. J. B. Murfree, Murfreesboro, Tenn., "Strangulated Hernia." Dr. E. Denegre Martin, New Orleans, reported two cases of cancer of the appendix.

Dr. Henry T. Byford's paper, "Some points in the Technic of Aseptic Operating," will appear in full in The Journal.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, Nov. 3, 1904.

The President, Dr. Richard C. Norris, in the Chair.

Report of a Case of Rupture of the Trachea During Labor.

Dr. Charles A. Service reported this case. In a primipara, aged 29, after labor had proceeded in an apparently normal manner for some time, during a pain, a swelling appeared about the left side of the neck and face. On examination the subcutaneous tissue from the sterno-clavicular junction to the corner of the mouth was found to be emphysematous and painful on pressure. This condition increased with each pain. An anesthetic was administered and delivery effected as speedily as possible. The emphysema finally extended to the entire trunk and both arms, and the eyelids, especially of the left, were distended to the extent of obscuring vision. The swelling disappeared by the eleventh day, absorption being apparently favorably influenced by the application of hot alcohol several times daily.

DISCUSSION.

Dr. Roland C. Curtin reported a case of emphysema of the chest, neck and face during labor which later involved the whole chest except the mammary glands and in which deglutition caused pain and nausea and which was followed by an uneventful recovery.

Dr. E. P. Bernardy said that he had seen a patient's face become swollen and crepitant after a long and difficult labor, but that he had not considered this a condition of fractured trachea.

Dr. Richard C. Norris reported seeing this accident twice.

Dr. B. C. Hirst stated that he had seen one case of rupture of the trachea and that that was a comparatively mild one. The deformity was not great, but the crepitation was marked.

Central Rupture of the Perineum.

Dr. W. H. Nicholson reported this case, which occurred during labor. The rupture was the size of a half-dollar and occurred just in front of the anus. He ascribed its causation to marked overflexion of the head associated with a very narrow symphyseal arch. He considered that there may have been some abnormality in the function of the levator ani which either prevented head extension or did not present enough resistance to produce it. Dr. Nicholson said that the symptoms which would lead one to suspect such an accident are great distension and thinning of the perineum, associated with posterior situations of the presenting part as a whole. He thinks that the preventive treatment should consist in section of the perineum in the median line followed by a delivery of the head by forceps or rectal finger.

DISCUSSION.

Dr. Roland G. Curtin reported a case similar to that of Dr. Nicholson.

Dr. Richard A. Cleemann also reported a similar case. The child was born during his absence, and on examining the patient afterward he found a long jagged tear extending from the anus nearly to the fourchette. The wound was at once closed with silk sutures, but union was followed by a vaginal fistula which closed spontaneously later. Subsequent labors occasioned lacerations, but none so severe.

Dr. H. P. Fisher reported a case in which he averted a tear into the rectum by incising the perineum anteriorly with scissors.

Dr. Daniel Longaker said that he has never seen a central perforation of the perineum, but has frequently seen, coming in advance of the head, a fold of mucous membrane which was starting to tear high up in the vagina and was advancing with the progress of the head.

Dr. G. N. Boyd considers the etiology of the tear a matter of great importance. He has seen a tear commencing as a central laceration finally completing itself before the delivery of the child. He admitted the possibility of the explanation given by Dr. Nicholson of spasm of the levator ani causing this condition.

Dr. E. P. Bernardy stated that central lacerations may be due to several causes, the principal one being malposition of the head, especially posterior presentations. The second cause he regards as the well-known lack of muscular extensibility. The forceps as applied in posterior presentations may also be a cause. He reported an illustrative case.

Dr. R. C. Norris stated that one has to theorize a good deal on the mechanism of labor in such cases, since they happen so infrequently. He considers Dr. Nicholson's explanation not wholly satisfactory. He has noticed that just before the birth of the occiput there is occasionally a sudden giving way of some obstacle to the advancing head. He believes that this release of the head is due to sudden overdistension of the pelvic floor, which allows the head to quickly pass through the vulvar ring. The practical side of the question is that at this stage of labor the obstetrician should see that the head does extend.

Dr. Ncholson stated that the overdistension of the perineum, antedating the true central lacerations, precludes the possibility of mistaking an ordinary case for a central laceration. He thinks it is generally agreed that there should be immediate repair of the injury.

Therapeutic Value of Ergot in Labor.

Dr. J. C. Applegate stated that he does not regard ergot as a safe or appropriate remedy for uterine inertia. Its physiologic effects on the uterus are unlike the rhythmical labor pains in that they are less intermitting, more continuous and predisposed to cause uterine constriction, particularly of the lower segment. He thinks that the dangers attending premature administration of the drug are: Rupture of the uterus. asphyxiation of the child or paralysis of fetal heart from compression, and retention of the placenta and membranes. He believes it better to complete the dilatation manually. He considers ergot indicated as a safeguard after delayed labor, or when inertia has been a factor, after placenta previa, and after reposition of an inverted uterus.

DISCUSSION.

Dr. R. C. Curtin stated that most of the ergot he has given of late has been for other hemorrhages than those of the uterus. In cases where there is general oozing from a mucous membrane he thinks it does good.

Dr. Longaker said that he agreed with Dr. Applegate that several of the most difficult cases of expulsion of the placenta were cases in which ergot had been given freely. He reported briefly two patients who died of postpartum hemorrhage after they were left by the physician. In neither case was ergot used. He thinks that the routine method of completely emptying the uterus and then administering ergot would prevent such calamities.

Dr. W. R. Nicholson stated that ergot instead of increasing the chances of infection has the opposite effect and offers a means of cleansing the uterine cavity in a way not possible by any other means.

Dr. Applegate agreed that ergot may be of great advantage as a preventive against septic infection when there is profuse bleeding or other evidence of a relaxed condition of the uterus. On the other hand, if the uterus is normally contracted, he believes that ergot blocks the secretions and dilates the veins, thus aiding in the absorption of septic material.

Travel Notes.

XXI.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

S. S. Kronprinz Wilhelm, Oct. 11, 1904.

When I decided to make a tour around the world by way of India, during midsummer, I knew beforehand that I would have no use in that part of the world for an overcoat or blankets. I was very well aware of the fact that that part of India which I expected to see had an unenviable reputation as a summer resort. Information from different sources concerning the climate of certain countries is about as reliable as hunting and fishing stories. In order to ascertain about what I had to expect in the way of heat at that time of the year, I interviewed sea captains and people who had lived in India. The opinions expressed were so widely at variance that I remained in doubt concerning the real climatic conditions that I would have to encounter in that part of my itinerary around the world. A traveling companion from San Francisco to Auckland, a missionary, who had lived several years in the northern part of India, gave me the most discouraging account. He said that where he formerly resided the burning sun during summer heated the stones to such a degree of heat that a simple touch with the hand would result in a burn sufficiently severe to blister the skin. An officer of the Indian Medical Service gave me the consoling information that when he was on duty at Calcutta he had to spend several hours each day in a cool bath during the summer months to counteract the intensity of the heat. Sea captains were only familiar with the climate on the coasts of India; they knew nothing about the summer climate of the great plains which I expected to cross. Their opinions on the coast climate were not unanimous. They could be formulated about as follows: Very hot, hot, quite hot, not so bad as has been represented. In view of these testimonies, I approached the climate of India with a mixed feeling of hope and fear. After having crossed the equator twice on the way from

San Francisco to Ceylon, I spent five days in the hot, humid climate of Ceylon, and for the first time fixed my eyes on "India's Coral Strand" early Tuesday morning, August 30. From subsequent experience. I would suggest the following change in the second line of the famous and well-known missionary hymn:

From Greenland's icy mountains
From India's "burning" strand,

as this change would more forcibly indicate the difference in the climatic conditions of these two places which these lines are intended to convey. The first impression of India in landing at Tuticorin is very disappointing. Unlike the South Sea Islands and Ceylon, the coast is not fringed with palm trees; it is bare and barren. The country is level and vegetation very scanty. The part of India which I traversed, and the tour extended from Tuticorin to Bombay. via Madras, Calcutta, Benares, Allahabad, Agra, Delhi, Jaipur and Ahmehabad, is entirely devoid of interesting scenery. There are no forest-clad mountains, waterfalls, mountain lakes, babbling springs nor clear rivers. Most of the river beds are dry or are a succession of dirty pools, the favorite bathing and drinking places for man and beast.

The sacred Ganges at Benares is about the size of the Mississippi at St. Louis. It is the great sewer for millions of people; its dirty water is credited with great healing power by the superstitious population and is carried in earthen or brass vessels, or pigskins, great distances for drinking purposes. as it is supposed to possess virtues which will prevent and cure all kinds of diseases. When we realize that the river is used as a receptacle for corpses, dead animals and everything that is filthy, it is difficult to comprehend how Mark Twain could come to the conclusion that its water is the purest in the world and sing its praises. This great traveler has immortalized himself with the natives of India by lauding the purity of the Ganges water. He may be right from a bacteriologic standpoint, and his position would be upheld by the Chicago Department of Health, but would meet with violent opposition by the guardians of health of the city of St. Louis.

When I saw this sacred stream its water was about the color of pea soup, and during a boat ride along its shores I saw a number of decomposed, bloated dead dogs floating on the surface of the sluggish stream, and at the place where the corpses of human beings are cremated baskets of ashes were consigned to its sacred water. The soul of the Hindu finds no rest until at least a part of the incinerated remains are deposited in this river. From the ashes of the cremated bodies a few fragments of bone are taken, tied up in a cloth and sooner or later this ghastly bundle must be thrown into the Ganges, even if this part of the funeral rites requires days and weeks and no inconsiderable expense incidental to the travel. It is fortunate that this river is inhabited by crocodiles, which can dispose, at least, of some of the bodies and carcasses which are thrown into it by the hundreds and thousands every day. In the inhabited parts of the country through which the Ganges passes, its shores are lined with washerwomen and washermen and human and animal bathers. The amount of human excreta which find their way into this stream is simply enormous, and other sources of pollution are innumerable; hence, if nature's laboratory can cope successfully with so many sources of contamination and render the water. if not clean, yet potable and bacteriologically pure, she has done what sanitarians so far have failed to accomplish.

I have said that the part of India included in my tour lacks scenic beauty. It is monotonous, a great, level, limitless plains. covered by rice marshes on the west coast; deserts. pastures. grain and cornfields in the interior and along the Indian Ocean coast; very little fruit culture anywhere. Between Madras and Calcutta. and in the vicinity of Jaipur. the monotony of the landscape is somewhat relieved by mountain ranges. which are. however. almost bare. dotted only here and there with clumps of shrubs and dwarfed. hardy. much-branched trees.

Water is India's greatest concern. On the amount of rainfall depends the success or failure of the crops.

> "All the results of agriculture are dependent not so much on reason and diligence, as on those most uncertain things, winds and weather."—Cicero.

Deforestation has impoverished India, as it has the Holy Land, Greece, Turkey, Spain, southern Austria, and parts of the United States. The building of reservoirs and dams to hold heaven's gift have succeeded only in part to prevent drouths when the rainfall is scanty. The government has at last recognized the true cause of the frequent drouths, and in 1880 passed laws prohibiting further forest destruction, and took active steps to restore what has been lost by the reckless, thoughtless, destructive work of man. The results of the efforts of reforestation are apparent in many parts of the country, and if this good work is carried on with the deserved energy, India will get its good share of rain in less than a hundred years; the farmer will reap, from year to year. the rewards of labor, famine will disappear and the general prosperity of the country will reach a degree never known before. Nature has made provision for reforestation of arid regions. In the desert of Sahara, along the banks of the Suez Canal, I noticed a shrub from 4 to 8 feet high, with a dark green foliage—the *Tamarix tetragyna*—in places where nothing else would grow. This shrub is preeminently fit for dry saline soil. The leaves are eaten by cattle. This shrub would flourish in the deserts of our western states.

At present the laboring classes spend much of their time and labor in holding and distributing the limited water supply. In some districts the government has established well-planned systems of irrigation, which have brought millions of acres of arid land under successful cultivation. Beyond these areas, the farmer, during the dry season, spends most of his energies in supplying the arid soil with moisture by the most primitive methods. From pools, tanks and wells, water is drawn in pails by hand, foot or bullock power, in the same way as was done a thousand years and more ago. I never saw a windmill in India. The water is poured into little gutters. which intersect the fields in different directions. Men, women and children are engaged in this kind of work. The women supply the household with water and, as the wells are frequently far apart, this task is often not an easy one. Hard as this work may be, it has its fascination for the women. They congregate at the well, chatter and laugh while the earthen or brass vessels are being filled, and, when perched on their well-balanced heads, return in files to their village, keeping up their lively conversation until the one from the greatest distance finds herself alone. The erect, graceful stature of the laboring native women is largely due to this enforced useful gymnastic exercise.

A common way of dipping water from a tank or pool into an irrigating ditch is by means of a large waterproof basket made of palm leaves, to which is attached a piece of rope on opposite sides. Two persons swing this basket so regularly and skillfully that it catches the water on one side and discharges it on the other. To maintain the proper *tempo* of these swinging movements between the two persons so employed, a monotonous chant regulates the muscular movements. Pumps appear to be unknown. When bullocks take the place of man power, the water is drawn from the well in an immense bucket, the traction rope running in the groove of a wheel about two feet in diameter. The bucket is swung in the desired direction by a man and emptied. The bullock's work is not so easy as it might seem. The run is a short one and the animal is not a very lithe one. and the constant turning movements must be much more fatiguing than the traction in a straight direction over such a short distance.

The elevation of water from a well by a beam, kept in motion by up-and-down movements by the to-and-fro walking on it of one or more boys. can not be regarded in the light of a childish play. The actors must be sure-footed in walking back and forth on the polished beam. and when the exercise is kept up for hours the muscles of the legs and back have certainly undergone a great strain, and when this work is done under the burning rays of the sun, it means a bodily exertion which would exhaust the strength of our best athletes in a surprisingly short time.

ATTRACTIONS OF INDIA.

I did not go to India with the expectation of seeing enchanting scenes, hence I was not disappointed at their absence. I had seen most of the finest scenery in the world, including Alaska, Yellowstone Park, Yosemite Valley, Switzerland, Norway, Tyrol, Siberia, West Indies, Central America, Tahiti, etc., and I came to India to see what is generally recognized as the most interesting country in the world. I came to India to see her people, temples, palaces, tombs, her works of ancient art, her trees, flowers and animals. Having seen as much as possible of these things during the short space of eighteen days, traveling at the same time more than 4,000 miles by rail and during the worst season of the year, I feel fully compensated for the risks incurred and the sufferings endured, and can only repeat what has so often been said, that the real traveler, not the sightseer, will find here more that will interest him than in any other country in the world.

Take away from the Holy Land sacred history and its remaining landmarks, and it could furnish no such attractions as can India, the land of ancient history, civilization, art and science. The tombs and pyramids of Egypt are modern when compared with the ancient temple ruins in India. The history of Rome is as of to-day when contrasted with the records of India, punctured indelibly in characters on the palm leaves used as writing material for thousands of years, and carefully preserved in the temples, which are practically fireproof, and many of them never touched by the rude hand of war and plunder. The ancient history of Egypt must be studied, not in Egypt but in the British Museum, while to become familiar with the earliest history of India, it must be studied in India itself. India has landmarks in history that can not be transported like Cleopatra's needle, landmarks that would be ruined and made valueless if they were taken from the places where they were built thousands of years ago. People from all parts of the world may be seen at a world's fair exhibition, but it is impossible to know them or to learn their habits and customs, their vices and virtues until they are seen at their houses, at their places of business, on their farms, at their public amusements, in their own environments. A native in a distant strange land on exhibition is no more of a native than is a lion in a cage to be compared with a lion in the deserts of Nubia.

And, after all

> "The greatest study of mankind is man."—
> Pope.

The average tourist wants to see beautiful scenery, to walk picture galleries, to attend operas and concerts, to get a glimpse of and, if it is at all possible, to come in touch with royalty or with persons of high positions and social influence. The true traveler, on the other hand, spends much of his time among the mass of the common people, the backbone of every nation. He is anxious to learn from his own observations what they do and how they live. He sees them work in the fields and he visits them in their huts. He visits the markets to learn what the country produces, and he ascertains the prices of foodstuffs. He studies the habits and customs of the people, their clothing, their implements of agriture and war and the tools of the artisans. He looks into the little shops and finds out what the people buy and sell. He makes a study of the trees, flowers and animals, domestic and wild. He frequents the botanic and zoologic gardens and museums. He takes special interest in the landmarks of history, ancient and modern, and the educational advantages and religious beliefs of the natives of the country he visits. With such objects in view, there is no country in the world that offers a wider field and a richer material than India.

MY SERVANT, LAZARUS.

As I have indicated before, travel out of season in a tropic country offers advantages as well as disadvantages. Crowding on shipboard, in railway carriages and in hotels is avoided. There were only twenty first-class passengers on the voyage from Adelaide to Colombo, four from Colombo to Tuticorin and less than fifty from Bombay to Marseilles. At Madras, besides myself, there was only one guest in the Connemara Hotel; at Calcutta, in the Great Western Hotel, not more than ten; at Benares I had the Hotel de Paris to myself, so at Agra the Metropole, and at Delhi the Laurie Hotel, and at Jaipur, in the Rastum Family Hotel, besides myself, there was the Parsee woman doctor who will be referred to again further on. At Bombay, the magnificent hotel Taj Mahal, with 600 rooms, had less than sixty guests at the time of my visit. The Indian railways provide well for the first-class passengers. The first-class compartments have six sitting and four lying-down places, lavatory and a connecting small compartment for servants. Towels and bedding are carried by the passengers. During the six nights I spent on the train I shared such a convenient compartment only once with a fellow traveler, and during the day I was very seldom disturbed by additional passengers. I was never obliged to check my trunk, which was always brought into my compartment. All trains carry ice and soda; the former is sold at 4 cents a pound and the latter at current prices. The trains make a stop of from 25 to 30 minutes at the eating stations at the usual meal hours observed in India.

In undertaking the trip through India at such an unseasonable time, I felt, for the first time in my life, the need of a personal attendant to relieve me of unnecessary care and physical exertion, and on its completion I had every reason to be satisfied with the step I had taken. To pack and to unpack, in a temperature ranging between 92 and 105 F. every day or two and to take care of the baggage and bring it from station to hotel and from hotel to station in such an uncongenial climate, are tasks that should be avoided by the traveler and assigned to a coolie. At Colombo I engaged Lazarus, a Ceylonese Tamil, about 26 years of age, who was to accompany me as my servant from there to Bombay The understanding was that I should pay his transportation both ways, third-class, and that he should receive a rupee and a half (48 cents) a day. The whole expense for the required time amounted to $35.66.

Lazarus was a typical Tamil, slender, lithe, coal-black, with sharp, rather intelligent eyes. He had a wife and two children and lived near Colombo. He inherited the Roman Catholic faith and whenever we visited a Catholic church he sprinkled himself with holy water and made the sign of the cross. A closer acquaintance with him, however, threw some shadows on the religious life of this member of the Roman Catholic faith. His greatest failing was in money matters. Our accounts did not always agree, but, as the amount was usually small, his bills were generally passed and paid; however, as this was a daily affair, I am satisfied that some rupees, many annas and much copper found their way into a corner of his soiled handkerchief instead of back into my pocket. I have learned by a somewhat expensive experience that a pigmented skin abhors truth and cherishes to represent things in the wrong light, and that whether yellow or black its owner, heathen or convert can seldom be depended on. I have learned to comprehend why the Devil, the father of lies, when pictured, is usually made to appear in black. Questionable as the little transactions of Lazarus may have been, his services proved invaluable and, in the end, I was the gainer so far as expense was concerned. He was a very good servant. I could not lose anything if I tried. Things that I threw aside he would pick up and repack.

Lazarus had many unpleasant functions to perform. Tipping is the curse of the traveler. This nuisance has reached greater dimensions in India than in any other country. Tipping in out-of-season travel grows as an unavoidable evil in proportion as the number of visitors is diminished. In hotels and at railway stations the number of employes far exceeded the demand, and as I was so often the only guest or first-class passenger, all eyes and hands centered on me. I made Lazarus my agent in the distribution of tips. It was he who converted large silver coins into smaller change, silver and copper. The coolies did not like to deal with me in such an indirect way, but the rule was an inflexible one and was adhered to from the beginning to the end of the trip. It was by this method of disposing of the tip nuisance that both I and Lazarus made money. The coolie, ignorant as he may be, has learned to distinguish between silver and copper and hates the sight of the latter. To pass through India with honor in the estimation of the coolie, it is necessary to carry a liberal supply of silver coins and to see to it that not too many get a hold of your baggage, as the carrying of an umbrella or cane seems to entitle the bearer to the same financial consideration as is tendered to the one who groans under the weight of the trunk. Lazarus was a source of the greatest comfort to me. He would inform me when to prepare for the next eating station and when the time came to change cars or the approach of the station where I wished to interrupt the journey. He brought me ice and soda whenever I was tortured by thirst, which was often the case. He was master of the Tamil, Singhalese and Hindustan languages, but his knowledge of English was very limited. This was perhaps on many occasions desirable, as he was very loquacious, like all his countrymen. He would often discourse at length, but at the end I did not know in what language. Some of his pigeon English was amusing. In looking at some wild peacocks one day, he wanted to point out the bird with the brightest plumage, and did so by calling him "man peacock." His pronunciation of any of the common English words was so defective that they were absolutely unintelligible. I had held out to him from the very beginning the inducement that if his service should prove satisfactory at the end of the trip he would receive, besides his daily wages, some gold, and in this I did not disappoint him when I bid him good bye at the Bombay dock.

(To be Continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Acute Laryngeal Catarrh.

In the treatment of this affection in adults, Yeo, in *Clin. Ther.*, states that small doses of opium are advantageous in the early stages in allaying the irritation and in relieving the cough. It is of service combined as follows:

℞.	Morphinæ acetatis	gr. ii		12
	Antimonii et potassii tartratis	gr. iss		09

M. Fiant chartulæ No. xvi. Sig.: One powder every four or five hours.

Heroin is also of value in relieving the tickling cough and the soreness in the larynx combined as follows:

℞.	Heroin hydrochlor.	gr. ss		03
	Terpin. hydratis	gr. xxx	2	

M. Fiant capsulæ No. xv. Sig.: One capsule every three or four hours.

Warm alkaline drinks should also be recommended in thinning the mucus which is sometimes very tenacious and hangs about and partially obstructs the glottis, rendering it difficult to expel. For this purpose the author recommends Apollinaris water to which one or two tablespoonfuls of hot milk should be added and the entire amount drunk. This should be repeated every two or three hours. The following mixture may be substituted for this:

℞.	Sodii bicarb.	ʒi	4	
	Sodii chloridi	gr. xxx	2	
	Spiritus chloroformi	m. xxx	2	
	Aquæ camphoræ q. s. ad	℥vi	180	

M. Fiat mistura. Sig.: Two tablespoonfuls every two or three hours, mixed with an equal amount of hot water or milk.

Ammonium chlorid in 10-grain doses (.60) may be substituted for the sodium chlorid in the above combination.

Counter-irritation and warmth are indicatd by means of small mustard or linseed poultices over the larynx. The following liniment is recommended by the author, rubbed into the throat:

℞.	Olei pini sylves	ʒii	8	
	Linimenti camph. compos	ʒiv	15	
	Linimenti saponis q. s. ad	℥iss	45	

M. Fiat linimentum. Sig.: Apply locally two or three times daily, followed by thorough friction.

Elimination by the bowels by means of saline aperients should be carried out. The voice should be rested and the desire to cough resisted as much as possible.

The following spray is recommended as very efficacious:

℞.	Cocainæ hydrochlor.	gr. iv		25
	Potassii chloratis	gr. lxxv	5	
	Aquæ laurocerasi	m. lxxv	5	
	Essentiæ menth. pip	m. iii		20
	Aquæ q. s. ad	℥viii	240	

M. Fiat mistura. Sig.: To be used as a spray into the larynx.

Inhalations of the tincture of benzoin are indicated, especially in the less acute cases, applied by floating half a teaspoonful of the tincture on a pint of hot water. It is allowed to stand in the patient's room or is inhaled through a funnel. In the treatment of laryngitis in children, hot sponges applied to the neck are recommended and vomiting produced where the mucus is very tenacious, by the administration of vinum ipecacuanhæ minims 30 to 60 (2.-4.) mixed with two or three teaspoonfuls of warm water. Where there is a constant irritating cough, small doses of Dover's powder are advised to relieve the cough. To promote expectoration the following combination is recommended:

℞.	Sodii chloridi	gr. xvi	1	06
	Sodii bicarb.	gr. xxiv	1	55
	Syr. senegæ	ʒiv	15	
	Aquæ q. s. ad	℥iv	120	

M. Fiat misturæ. Sig.: A dessertspoonful, warm, every two hours.

As an expectorant in catarrhal laryngitis in children the following is of service:

℞.	Potassii iodidi	gr. xv-xx	1-1	30
	Syrupi senegæ	ʒiii	12	
	Aquæ q. s. ad	℥iii	90	

M. Fiat mistura. Sig.: One dessertspoonful every two hours.

The following may be used as a spray:

℞.	Cocainæ hydrochlor	gr. iv		25
	Glycerini acidi carbol	ʒi	4	
	Aquæ rosæ q. s. ad	℥iv	120	

M. Sig.: To be used as a gargle three or four times a day or sprayed directly into the larynx.

[Glycerin acidi carbolici contains 20 per cent. of carbolic acid].

Bronchopneumonia in Childhood.

The chief indications in the treatment of bronchopneumonia, according to Stanley, in *Birmingham Med. Rev.*, are to prevent the extension of the disease and to lessen the tendency to blocking the tubules. The child must be kept in bed in a properly ventilated room and placed on a light diet, as milk and barley water, or in older children boiled milk and bread. The following is recommended as an expectorant:

℞.	Vini ipecacuanhæ	m. v-x		30-.65
	Spts. ammon. arom	m. v		30
	Syrupi tolutani	m. v		30
	Aquæ q. s. ad	ʒii	8	

M. Sig.: To be taken at one dose, and repeated every four hours.

In cases of medium severity with a moderate amount of consolidation a pneumonia jacket should be applied and the following prescribed:

℞.	Vini ipecacuanhæ	m. v		30
	Spts. ammon. arom.			
	Syrupi senegæ, āā	m. x		65
	Syrupi tolutani	m. xv	1	
	Aquæ q. s. ad	ʒii	8	

M. Sig.: To be taken at one dose and repeated in four hours.

If there is *no improvement* within thirty-six hours one *minim* of creosote should be added. If the temperature is unusually high, tepid sponging is indicated and the following substituted:

℞.	Liq. ammon. acetatis	m. xv	1	
	Spiritus etheris nitrosi	m. x		65
	Ammon. bromidi	gr. v		30
	Syrupi simplicis	m. xx	1	30
	Aquæ q. s. ad	ʒii	8	

M. Sig.: To be taken at one dose, and repeated every four hours.

If *vomiting and diarrhea* are present, the milk may be discontinued and whey or albumin water substituted. The following combination should be given if the diarrhea proves stubborn:

℞.	Bismuthi salicyl.			
	Sodii bicarb., āā	gr. v		30
	Bismuthi subnit.	gr. x		65
	Pulv. tragacanthæ	gr. xx	1	30
	Aquæ q. s. ad	ʒiii	12	

M. Sig.: At one dose, and repeat in four hours if necessary.

Two grains of Dover's powder may be added to the foregoing if necessary to check the diarrhea. *During* convalescence the patient should be given very nutritious food along with codliver oil or the hypophosphites.

Aufrecht, in Nothnagel's Encyc. of Med., recommends as the most important thing in the treatment of this disease that the patient be placed in a sunny, well-ventilated room and special *attention given to the diet.* Quinin tannate is recommended, given in small doses. Children up to 1 year of age should receive one and a half grains (.09) twice daily, and older children three grains (.20) twice a day. The following combination is also employed in the treatment of this form of pneumonia as in the croupous form:

℞.	Quininæ tannatis			
	Ferri oxydati sacch., āā	gr. iss		09

M. Fiat chart. No. i. *Sig.: One* such powder twice a day, *increasing the dose according to age.*

As to the method of lowering temperature and of increasing elimination, the author advises that a linen cloth or napkin be wrung out of cold water and wrapped around the body of the patient from the back, enveloping the entire thorax, and a dry piece of flannel placed around this compress. The child is then placed in bed and in half an hour the cloth should be changed. By this treatment the respiratory movements become deeper, the sleep is improved, the temperature lowered and the frequency of the respirations and pulse markedly diminished. These improvements are generally shown within ten or twelve hours, when this treatment may be discontinued, to be repeated when necessary, observing at the same time any symptoms of collapse which may occur from too rapid extraction of heat. It is *important to* change the position of the patient from time to time to prevent *stasis in the posterior and* dependent portions of the lungs. *This author recommends baths* only in cases in which there is marked dyspnea, cyanosis and stupor with high temperature. In such cases he recommends a bath at a temperature of from 88 to 90.5° F. for five or ten minutes at a time, followed by effusions of cold water on the neck and back from a moderate height. He condemns the use of emetics except in those cases in which the affection sets in abruptly *inside of from* twenty-four to thirty-six hours with *symptoms of dyspnea and* marked cyanosis. Emetics should not be administered to debilitated *and poorly nourished* children. When emesis is indicated the following combination is recommended:

℞.	Antimon. et pot. tartratis	gr. 1/6		01
	Pulv. ipecacuanhæ	gr. iv		25

M. Fiat chart. No. i. Sig.: One such powder every ten to fifteen minutes until emesis is produced. The use of apomorphin should in all cases be avoided.

Expectorants are very useful *in the course of the affection.* For this *purpose the* author recommends the following:

℞.	*Pulv. ipecac*	gr. iss-iii		09-.20
	Syrupi simplicis	ʒss	2	
	Aquæ q. s. ad	ʒii	8	

M. Sig. One-half this amount at one dose, and repeat every two hours.

Attention is called to the fact, however, that some children possess an idiosyncrasy against ipecac. Even though vomiting may not occur, exhaustion *may ensue and will disappear* with the discontinuance of this' *medicine. As the most suitable sedative* to the irritated mucous membrane the author employs inhalations of steam. When the child is continuously coughing day and night, leading to hoarseness and to exhaustion and sleeplessness, small doses of morphin must be used combined as follows:

℞.	Morphin sulph.	gr. 1/3		02
	Aquæ destil	ʒiiss	10	

M. Sig.: Five drops to a child 2 years of age, repeated *two or three times daily according to indications,* and increasing the succeeding doses to ten or fifteen drops (.65-1.00) if necessary, depending on the effect of the first dose.

In rachitic and cachectic *individuals and in* those cases subject to intestinal disturbances this treatment must be modified. More attention must be given to the diet and alcoholic stimulants added in the form of wine, according to the season.

Pertussis.

The following combinations are recommended in *Clin. Ther.* in the treatment of whooping cough:

℞.	Ext. cannabis ind.	gr. i		06
	Ext. belladonnæ	gr. iii		20
	Spiritus vini rectif.			
	Glycerini, āā	ʒiss	6	
	Aquæ q. s. ad	℥iii	90	

M. Fiat mistura. Sig.: One-half to one teaspoonful *at a* dose, night and morning, depending on the age of the patient.

The foregoing should not be given to infants under eight months of age. Or:

℞.	Ext. belladonnæ flu	m. iv		25
	Potass. bromidi	gr. xlviii	3	20
	Glycerini	℥iii	90	
	Aquæ dest. q. s. ad	℥iv	120	

M. Fiat mistura. Sig.: Two teaspoonfuls every four hours.

Medicolegal.

Power of School Board to Require Vaccination.—The Supreme Court of North Carolina says that the sole question presented in the case of Hutchins vs. School Committee of Town of Durham was whether the following resolution was a reasonable exercise of the powers of the school committee of the city of Durham: "Whereas, From the report and recommendation of Dr. N. M. Johnson, superintendent of health of Durham County, in the judgment of this committee, general vaccination of teachers and children attending the schools is desired and required for the public safety: Now, therefore, be it resolved, that no teacher or pupil be allowed to attend any school of the city of Durham after April 1, 1904, who does not present to the principal of such school a certificate of a physician of the city showing that such teacher or pupil has been successfully vaccinated within three years from that time, unless such person has been vaccinated within ten days preceding the date he or she presents himself or herself for such attendance, and this resolution shall be a permanent regulation of the schools." An epidemic of smallpox prevailed in the city of Durham and its suburbs last spring, not less than 1,000 persons being attacked, and the above resolution was passed as a protection to the 2,500 children in the schools of that city, the attendance in which had fallen off 40 per cent. by reason of the fear of contagion. These facts were averred in the answer and found to be true by the judge. In the judgment of the Supreme Court, the resolution was a proper and reasonable exercise of the powers of the defendant. This, the court says, was not a question of compulsory vaccination under legislative authority, but simply whether, if a child was not vaccinated, the school board could, as a precautionary measure, exclude all such from the school, by a resolution, under the power given in the charter to "have entire and exclusive control of the public school interest and property in the town of Durham, prescribe rules and regulations . . . and do all other acts that may be just and lawful to conduct and manage the public school interests in said town." The plaintiff relied on Potts vs. Breen, 167 Ill. 67, that, in the absence of express legislative power, a resolution requiring vaccination as a prerequisite to attending schools is unreasonable, when smallpox does not exist in the community, and there is no reasonable ground to apprehend its appearance. But this court is not inclined to follow that authority. With the present rapid means of intercommunication, the court says, smallpox may make its appearance in any community at any moment without any notice given beforehand, and incalculable havoc be made, especially among the school children, which can not be remedied by a subsequent order excluding the non-vaccinated. "An ounce of prevention is worth a pound of cure." Besides, that case was not in point here, where smallpox had been epidemic, and was still threatening. The language of the resolution making it "permanent" would not prevent its repeal if on the subsidence of the danger the school board of that day should deem it proper to repeal. If the action of the board was not satisfactory to the public a new board would be elected who would rescind the resolution. The fact that it would be dangerous to vaccinate the plaintiff's daughter, owing to her physical condition, would be a defense for her to an order for general compulsory vaccination, but was no reason why she should be excepted from a resolution excluding from the school all children who had not been vaccinated. That she could not safely be vaccinated might make it preferable that she herself should run the risk of taking the smallpox, but was no reason that the children of the public school should be exposed to like risk of infection, through her, or others in like case. Though the school children were vaccinated, there were always some whose vaccination was imperfect and danger to them should not be increased by admitting those not vaccinated at all. Besides, a rule not enforced to all alike would soon cease to be a rule enforceable at all.

Construction of Practice Act and What Violates It.—The Supreme Court of Iowa says, in State vs. Heath, that certain penalties are denounced by section 2580 of the Code against those who shall practice medicine, surgery or obstetrics in that state without first having obtained and filed for record the certificate required by the chapter of which that section forms a part. Section 2579 defines who shall be deemed to be practicing medicine as follows: "Any person shall be held as practicing medicine, surgery or obstetrics, or to be a physician, within the meaning of the chapter, who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or of prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." The manifest intention of the legislature was to divide those who shall be deemed practicing medicine into three classes: 1, all "who shall profess to be a physician, surgeon or obstetrician and assume the duties;" 2, those "who shall make a practice of prescribing or prescribing and furnishing medicine for the sick," and 3, those "who shall publicly profess to cure or heal." It is doubtless true that a mere public profession of an ability to heal would not subject any one to the penalties of the law. Such profession must be made under such circumstances as to indicate that it is made with a view of undertaking to cure the afflicted. One publicly professes, in announcing to the public generally his claim of skill in the art of healing, and is guilty, under section 2580 of the Code, if, without a certificate, and not within the statutory exceptions, this is done with the purpose of treating the maladies of patients who may engage his attention. There is some reason for not exacting proof of actual treatment in all cases. Should one profess to be a physician, and assume the duties or prescribe for the sick, little difficulty might be experienced in obtaining evidence of the fact. But suppose a charlatan, quack or other persons assumes or pretends to believe he may effect cures in an invisible manner, and undertakes to do so? Proof of his effort would be all but impossible. The statute, in order to be effective, has denounced the public profession that he will cure or heal, and this may be proven without exacting evidence that he has actually undertaken to do so. The statute, when fairly construed, does not seem capable of a broader construction. Nor does the court deem this essential in order to sustain its constitutionality. The statutes do not attempt to discriminate between different schools of medicine or systems for the cure of disease. No method of attempting to heal the sick, however occult, is prohibited. All that the law exacts is that, whatever the system, the practitioner shall be possessed of a certificate from the State Board of Medical Examiners, and shall exercise such reasonable skill and care as are usually possessed by practitioners in good standing of that system in the vicinity where they practice. This excludes no one from the profession, but requires all to attain reasonable proficiency in certain subjects essential to the appreciation of physical conditions to be affected by treatment. The object is not to make any particular mode of effecting a cure unlawful, but simply to protect the community from the evils of empiricism. Often the individual alone suffers from the want of proper attention, but in cases of contagious or infectious diseases the entire community may be endangered. In no profession, occupation or calling are the people more easily or readily imposed on. Section 2576 of the Code requires all, regardless of the particular school, to be examined in anatomy, physiology, general chemistry, pathology, surgery and obstetrics. Surely it is not unreasonable to exact for every one who proposes to undertake to prevent, cure or alleviate disease and pain some knowledge of the nature of disease, its origin, its anatomical and physiologic features, its causative relations and of the preparation and action of drugs. At any rate, the state, in order to guard the people against the effects of imposition or ignorance, had the right to exact such knowledge. The examination in materia medica, therapeutics and the principles and practice of medicine must correspond to the school according to which the applicant proposes to practice. In this case it conclusively appeared that the accused, who had never obtained a certificate from the State Board of Medical Examiners, professed publicly to heal a great variety of ailments (by "magnetic treatments"), and so did for the purpose of procuring patients and treating them. The question of his guilt should have been submitted to the jury.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 24.

1 *Roentgen Rays in the Treatment of Leukemia; a Study of Reported Cases. George Dock, Ann Arbor.
2 Two Cases of Bothriocephalus Infection, One of Them Showing Profound Anemia. David L. Edsall, Philadelphia.
3 The Military Importance of Mild Typhoid Infections, Such as Mountain Fever. Charles E. Woodruff, U. S. A.
4 *The Problem of the Prevention of Measles and Whooping-cough. Charles S. Caverly, Rutland, Vt.
5 The Pitch of the Normal Pulmonary Valve Sound and the Practical Significance of Its Changes in Acute Lobar Pneumonia and in Emphysema of the Lungs. Howard S. Anders, Philadelphia.
6 *An Unusual Case of Addison's Disease. H. B. Whitney, Denver.
7 The Compression Cylinder in Sklagraphy of Calculi. Henry Hulst, Grand Rapids, Mich.

1. **Roentgen Rays in Leukemia.**—Dock says that some cases of leukemia undergo marked change for the better under treatment with the Roentgen rays. The leucocytes fall to normal and sometimes show no more pathologic cells; the red

corpuscles improve, the enlarged spleen and lymph glands resume normal proportions, the general health seems restored. In some cases the effects are imperfect. In no case has observation been carried out long enough to speak of cure. In several cases death occurred while the symptoms seemed to indicate improvement. The action of the rays probably consists in affecting the tissues that produce the pathologic leucocytes, either directly or more probably through the production or setting free of substances that affect cell formation, or degeneration, or chemotaxis, or all of these processes. Further investigation is necessary. At present the improvement must be considered functional and not affecting the original cause, nor in a permanent way the morbid histology of the disease. The improvement of the red cells may be due to general stimulation of nutrition, in which suggestion may have a part, or by diminution of lymphoid or myeloid tissue. Roentgen ray treatment of leukemia is dangerous on account of the usual risk of dermatitis and burns, but probably also on account of toxic processes as yet impossible to explain. No stronger claims can be made for it than can be made for arsenic and certain serums and bacterial toxic substances, but it may prove more certain in its action than arsenic, and it can be more readily applied in practice than the injection methods. Great care should be taken to avoid burns. Methods should be as fully described as possible in each case; the blood should be carefully examined as fully and as frequently as possible and, if possible, urine examinations should be made to throw additional light on metabolic changes.

4. **Prevention of Measles and Whooping Cough.**—Cacerly deprecates the tendency on the part of the profession and of the public to view these diseases as harmless. Although the death rate from scarlet fever has been lessened considerably by judicious preventive measures, that from measles and whooping cough remains unchanged, these diseases causing more deaths than scarlet fever. From their fatalities they are as important as scarlet fever, or diphtheria, or even smallpox. Their prevention presents peculiar difficulties. First, the indifference of the public, shared by the profession. Second, the failure of many patients to see a physician. Third, their contagiousness at a time when they can not be recognized, and fourth, the variable length of time that they remain virulent. There is not sufficient unanimity among doctors as to the necessity of preventing these diseases. They are difficult of early and certain diagnosis because their early symptoms are common to these and many other less severe and less contagious diseases. The schools offer the best opportunity for their spread. In catarrhal diseases of all kinds affecting the upper air tracts, the child should be excluded from the school. The early communicability of measles and whooping cough should never be overlooked.

6. **Unusual Case of Addison's Disease.**—The striking features of Whitney's case were an entire lack of the usual pigmentation of the skin, and a course which was extremely acute, that is, so far as the clinical manifestations are concerned, since the adrenal tuberculosis was undoubtedly chronic and of very slow development. The diagnosis was not made until at the autopsy.

Medical News, New York.

December 24.

8 The Alleged Use of Dum-dum Bullets in the Japanese-Russian War. George Ryerson Fowler, Brooklyn.
9 Renal Hematuria of Unexplained Origin. Report of a Case with Cessation after Nephrotomy. Benjamin R. Schenck, Detroit.
10 Address. Medical Society of the County of New York. Henry S. Stearns, New York.
11 Hysterectomy and the General Health. Eugene C. Savidge, New York.
12 *An Analysis of Twenty-five Cases of Strangulated Hernia Treated by Operation. George Tully Vaughan, Washington, D. C.
13 *The Significance of Pus in the Nose, with Special Reference to the Affections of the Accessary Sinuses and Their Proper Treatment. George L. Richards, Fall River, Mass.

12. **Strangulated Hernia Treated by Operation.**—Vaughan analyzes 25 cases of strangulated hernia, including only those cases in which the intestine was not only incarcerated, but the circulation of blood so obstructed as seriously to threaten and in several cases to destroy the integrity of the intestine. Five were femoral, and 20 were oblique inguinal hernias. Twenty-three were on the right side, 2 on the left. There were 2 cases of pro-peritoneal or interstitial hernia. Only one case was complicated with an undescended testicle. The youngest patient was six weeks, and the oldest 77 year old. In 8 cases the point of greatest restriction was at the external ring, in 7 cases at the internal ring, and in 1 case in the abdominal cavity (constriction not determined in 9 cases). In 19 cases the sac contained small intestine, and in every instance in which the portion could be identified—11 in number—it was found to be ileum. In 1 case, the contents were two loops of small intestine; in 1, small intestine and omentum; in 1, large and small intestine and omentum; in 1, large intestine (sigmoid flexure); and in 2, omentum only. In 11 cases, dark or turbid fluid—sometimes blood clots—were found, and in these cases strangulation had existed from 2 to 96 hours; in 8 cases over 6 hours, and in 3 cases less than 6 hours. Venous thrombosis in the mesentery, ecchymosis, or hematoma of the intestinal wall or mesentery were found in 10 cases. In 2 cases the intestinal wall was rough and bruised, and in 1 a large hematoma was found in the intestinal wall and was treated by incision, evacuation and suture. In 9 cases the contents of the sac were gangrenous, 3 of the omentum only, and 6 of the intestine, and in 4 of these there was what is usually called general peritonitis. Besides the physical signs, the two most valuable symptoms were pain and vomiting. Pain existed in all the cases, but varied in character, duration and locality. Vomiting occurred in 20 cases, nausea without vomiting in 2, and neither nausea nor vomiting in 3. In 4 cases the so-called stercoraceous vomiting occurred. In all the cases except 3, after attending to the contents of the hernial sac, some operation for radical cure was performed. Of the 3 cases mentioned, 2 were cases of peritonitis, in which it was thought best to provide for drainage, and the third did not survive the operation. The formation of an artificial anus with or without resection of the intestine must not, says Vaughan, be done in any case in which the patient's condition will permit resection with immediate reunion. In every case in which the patient's condition will permit an operation, the radical cure should be performed. There were 6 deaths in Vaughan's series. One patient was a hard drinker; one, a woman, aged 77 years, who had suffered from strangulated hernia 13 days and had an incipient general peritonitis when the gangrenous intestine was resected. She died of peritonitis 48 hours after operation. The third case was that of a patient who had been suffering with intestinal obstruction nine days and who was very weak. He died on the table, apparently from exhaustion. The fourth case was one of strangulated hernia of nine days' standing, with general peritonitis, death occurring 14 days after the operation. The fifth case was a man, aged 60 years, who had gangrene of the intestine with numerous mesenteric thrombi and beginning general peritonitis. The last case was a feeble man, aged 77 years, inmate of an insane asylum, who had had strangulation of a right oblique inguinal hernia for 8 hours, and had been treated by taxis. Death occurred on the fourth day from toxemia or exhaustion. No peritonitis. This gives a mortality of 24 per cent. Cases in which the contents of the sac were in good condition, 16; 3 deaths; mortality, 18.75 per cent. Cases in which the contents of the sac were gangrenous or general peritonitis existed at the time of operation, 9; deaths, 3; mortality, 33.3 per cent.

13. **Significance of Pus in the Nose.**—A patient presenting himself with pus coming from one or both sides of the nose, the first thing to do, says Richards, is to clear the nose of all visible sources of obstruction, especially polypi; examine the teeth, to see whether there is anything in the way of probable dental origin of sinus trouble. Then at-

tempt to ascertain whether the pus comes from the antrum or from the frontal sinus or from the ethmoidal cells. Transillumination and exploratory puncture of the antrum may be resorted to. If the antrum is free, explore the frontal sinus; try to wash out with the canula or pass a probe, if possible; if not, remove the middle turbinate. If the antrum contains pus, irrigate. If these measures fail, a radical operation must be done. The better the drainage, the faster the cure, and to accomplish this it is necessary to have a good-sized opening into the antrum. If the pus appears to come from the frontal sinus, wash out with a canula, if possible, pursuing this treatment a reasonable length of time, and being guided as to the question of a future operation somewhat by the feelings of the patient, somewhat by the annoyance of the discharge, somewhat by the chronicity of the case. It is to be remembered that the frontal sinus is a simple, large, irregular cavity, which may communicate with one or more of the anterior ethmoidal cells, and that the operation, while not of itself especially serious, may mean a more or less prolonged course of after-treatment. Where there are several empyemas, it is better to clear out the nose as thoroughly as possible, and then, under ether, do the operation on all the cavities at once.

New York Medical Journal.

December 24.

14 A Contribution to the Serum Therapy of Syphilis. Justin De Lisle, New York.
15 *The Plasmeba of Dengue; a Brief Description of the Earliest Phases of Its Plasmic Characteristics. H. A. Eberle, Greensboro, S. C.
16 *The Removal of Internal Hemorrhoids by Incision. Ernest LaPlace, Philadelphia.
17 An Attachment to Bennett's Inhaler for Pharyngeal (Crile's Method) and Tracheal Administration, and for Ethyl Chlorid-ether Sequence. Victor C. Pedersen, New York.
18 A Reply to Dr. H. H. Seabrook's Paper on What Should the General Practitioner Know of Ophthalmology? Frank D. W. Bates, Hamilton, Canada.
19 Surgical Shock. J. Shelton Horsley, Richmond, Va.
20 Report of Skin Grafting, Using Amputated Extremities as a Supply of Skin. G. Hartman and C. Weirick, Harrisburg, Pa.

15. The Plasmeba of Dengue.—This name has been given to a parasite found by Eberle in the blood of persons suffering from dengue. The parasite of dengue belongs to the class sporozoa, and since it is found first in the plasma of the blood, Eberle has given it the generic name plasmeba. This plasmeba, primarily found in the blood plasma, impregnates the corpuscles, producing a pale, violet tinted growth assuming various shapes as it increases in size, and in which can be noticed, after from two to four hours, faintly darker bodies, the earliest spore formations which occupy usually from two-thirds of to the entire corpuscle. On many occasions, when the spores form in the pseudopodiæ, they give the corpuscles the appearance of being crenated, but in fact they are merely projections beyond the border of the corpuscle pushing out the elastic limiting membrane of the cell. These spores mature in the course of a few hours and are characterized by a definite outline enclosing a pale protoplasm without nucleus or nucleolus. These matured spores are highly refractive and finally burst through the limiting membrane of the corpuscle and are poured out into the plasma (the greater number, however, being passive) and are ready to enter on the new cycle. The dengue plasmeba is smaller and much more active than the ameba in malarial blood. Its detection requires great patience on the part of the investigator and thorough knowledge of its morphology. The secondary changes in the corpuscles are unlike those of any of the malarial types. Crescents or flagellæ have not been noticed. There is no enlargement of the spleen or liver. The plasmeba can be found in fresh blood specimens during every day of the disease, and in the same specimens sporulation and segmentation go on continuously. Quinin has no effect in cutting short the disease, nor in lowering the temperature. Only in complicated cases would its administration be recommended, and then it should be combined with other antipyretics. The minute dengue organisms stain beautifully in weak eosin solutions and in methylene blue.

16. Removal of Internal Hemorrhoids by Excision.—LaPlace describes his method as follows: The patient, prepared as usual, is placed on the left side with the thighs flexed on the abdomen. The sphincter ani is dilated by stretching with both thumbs. The hemorrhoidal area is brought into view by clamping with forceps (preferably Kocher's) each hemorrhoid at its upper and lower extremity parallel with the course of the rectum. The upper forceps being held in the left hand, the hemorrhoid is cut immediately above the forceps, with curved scissors, just enough to allow the cut to be closed by the immediate insertion of a continuous suture of No. 2 cumolized plain catgut, on a medium-sized curved Hagedorn's needle. This first cut being closed, the hemorrhoid is again cut a little, and the wound is closed by the same continuous stitch, and so the procedure is repeated until the hemorrhoid is removed, when the suture is finally tied. Should any hemorrhage occur, a whipped suture is applied locally. The result is a linear cut securely sutured. The danger from hemorrhage or from sepsis is reduced to a minimum. The catgut drops away in due time. Pain is rarely present and occurs only when the sutures have been applied too deeply. The advantages of the method are precision, absence of hemorrhage during or after the operation, safety, and simplicity. LaPlace has performed it 83 times without any complication in any case. The patients are cautioned to keep the bowels locked, with a half-grain opium pill twice a day, for two days. On the sixth day an enema is given and the patient is ready, as a rule, to be discharged. No dressing is applied, except a pad externally.

Medical Record, New York.

December 24.

21 *The Antitoxin Treatment of Tertian Malarial Infections. Joseph Herbert Ford.
22 Remarks on Melancholia. Joseph Collins, New York.
23 *Report of a Case of Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by X-Rays H. S. Birkett, Montreal.
24 Infant Feeding. M. J. Synnott, Montclair, N. J.
25 Paraphimosis in a Young Girl. M. I. Beeman, Newburgh, Ont.

21. Antitoxin Treatment of Tertian Malaria.—The antitoxin used by Ford was obtained from rabbits which were injected with the blood of patients suffering from malaria, or infected mosquitoes were allowed to bite them. The material injected was either the fluid serum or defibrinated serum, or serum, or corpuscles desiccated at a temperature below 53 degrees C. Of 9 patients treated, 2 were apparently unaffected; in 1 there was a temporary disappearance of symptoms, in 1 an abscess developed at the site of injection. Four patients recovered. The fever and parasites disappeared in the fifth case, but the course of the disease so much resembled a case of spontaneous cure that Ford regards it as inconclusive, in spite of the severity of the infection and the promptness with which the parasites disappeared from the blood after the injection of the serum.

23. X-Rays in Primary Lupus of Oropharynx.—Birkett's patient, a boy, aged 15, with a family history of tuberculosis, had two distinct growths in the oropharynx, each situated on the lateral and partly on the posterior walls of the pharynx. The growths were distinctly nodular in appearance, about the size of a swollen sago-grain, quite separate and distinct in the central portion, but merging into one another at the periphery; pale pink in the center, darker toward the periphery. The structures anterior to the growth were not involved. The uvula on its palatal surface seemed normal. The infiltrations extended upward to the cushion of each Eustachian tube, and from there towards the center of the nasopharynx along its root. There was no extension into the posterior nares. The pharyngeal aspect of the uvula showed two nodules, each about the size of a lentil. Under ether, by means of cutting forceps, Birkett removed the greater portion of the masses involving the lateral walls of the oropharynx. The microscope showed tubercle bacilli in typical tubercular tissue. Animal inoculation was positive. The local treatment carried out subsequent to the removal of the masses consisted of curetting the infiltrated areas and subsequently rubbing in a mixture of lactic acid and glycerin. This treatment proving ineffectual, the galvanocautery was tried, and finally, the Roentgen ray. The patient was treated with a regulating tube with a vacuum equal to a three-inch spark-gap, which was supplied from an eighteen-inch coil, operated by an electrolytic interrupter. The tube was placed ten inches from the patient and ten-minute exposures were made for ten treatments. On account of inflammation, treatment was suspended for three weeks. Daily treatments were then given for 23 days, the face being protected by a piece of wood painted with 11 coats of white lead on each side. A recurrence was treated in the same manner and the results at the present time are most satisfactory.

Boston Medical and Surgical Journal.

December 22.

26 Two Cases of Chronic Pemphigus of the Mouth. John W. Farlow, Boston.
27 Leprosy. Theobald Smith, Boston.
28 *Chronic Gastric Ulcers. Hour-glass Deformity of the Stomach. Report of a Case Successfully Operated on. Charles L. Scudder, Boston.
29 *The Decrease in the Death-rate of Consumption. Lester C. Leonard, Worcester, Mass.
30 Pulmonary Congestion as a Cause of Sudden Death. W. W. Miner, Ware, Mass.

28. Hour-Glass Deformity of Stomach.—Scudder's patient, a woman, aged 38, suffered from influenza 10 years ago, and since that time she has had more or less trouble with her stomach, complaining of dyspepsia and indigestion. She was unable to keep anything on her stomach and was nourished by nutrient enemas. On percussion the lesser curvature of the stomach was found two inches above the umbilicus and the greater curvature three inches below. An operation was undertaken because of the persistent vomiting, and the evident obstruction. On opening the abdomen, an hour-glass deformity of the stomach was found. The obstructing portions were evidently cicatrices of old and recent ulcers. A gastrogastrostomy and a gastroduodenostomy were done. Both of these operations were facilitated by the use of rubber-covered clamps, which prevented hemorrhage and the escape of stomach or intestinal contents. The patient made an uninterrupted recovery, being able to take with relish whatever food was given her.

29. Decrease in Consumption Death Rate.—Miller has reviewed such literature on the subject of tuberculosis as deals with the work done for its extinction. Treatment of any
[illegible] not directed toward the decrease or prevention of the
eases. he did not study. He says that statistics of tuber-
cause tl show conclusively a marked decrease in the death-rate
other les he last 20 years. For the countries whose statistics
offer the ilable, he believes that it is not too much to expect
diseases of disease will die out *in this century*. The most
should be estigators are agreed that tuberculosis is directly
cability of n le from one person to another. They consider
looked. itum a source of danger, but the spray from a
6. Unusual ezing patient in the last stages of consump-
of Whitney's c sider a much greater source of danger. They
tation of the sh pital for the consumptive poor, when in the
that is, so far e a necessity for the effective prevention of
since the ad f the disease. With proper precautions the dan-
of very slo tion from a consumptive may be reduced to al-
until at the

Lancet-Clinic, Cincinnati.

December 24.

8 The Alleged and Other General Infections of Intestinal
sian War. Gh Report of Fatal Cases. W. McCaskey,
9 Renal Hematur. Ind.
with Cessationna Malignum. Wm. H. Taylor, Cincinnati.
Detroit. sation and Cure. John F. Barnhill, Indian-
10 Address. Medical S
S. Stearns, New n. Albert Faller, Cincinnati.
11 Hysterectomy and t f Surgery, Philadelphia.
New York.
12 *An Analysis of Twen *December.*
Treated by Operatio arcinoma and the Parasitic Theory of
ton, D. C.
es Orth, Berlin.
13 *The Significance of Pus f the Surgery of the Hypertrophied
to the Affections of White, Philadelphia.
Proper Treatment. Georg kel's Diverticulum. W. Watson

1 trangulated Hernia Trea
25 cases of strangula

38 *The Operative Treatment of Cancer of the Breast, with an Analysis of a Series of 100 Consecutive Cases. J. Collins Warren, Boston.
39 Modern Bullet Wounds. Frank W. Foxworthy, Indianapolis.
40 *Some Experiments with a New Method of Closing Wounds of the Larger Arteries. George Emerson Brewer, New York.
41 Birth-fracture of the Skull. Family of Three, Illustrating the Effects of Operative Treatment. James H. Nicoll, Glasgow.
42 Divulsion in Esophageal Stricture by Means of a New Instrument. Roberto Alessandri, Rome.
43 *Parotitis Following Injury or Disease of the Abdominal and Pelvic Viscera. Brennan Dyball, Exeter, England.
44 *Duodenal Ulcer; a Clinical Review of 58 Cases Operated On, with Some Remarks on Gastrojejunostomy. William J. Mayo, Rochester, Minn.
45 Tetany and Foreign Bodies in the Stomach. Tetany Caused by a Mass in the Stomach, Composed of 40 Metallic Articles, Weighing One Pound; Gastrotomy; Cured. James P. Warbasse, New York.
46 Intra-abdominal Torsion of the Entire Great Omentum. Charles L. Scudder, Boston.
47 Hernia of the Bladder Complicating Inguinal Hernia. Francis J. Shepherd, Montreal.
48 Dermoid Cyst of the Pelvic Connective Tissue. Two Cases, with a Consideration of 24 Reported Cases. Harry H. Germain, Boston.
49 The Iliac Extraperitoneal Operation for Stone in the Lower Ureter in the Male. Harry Atwood Fowler, Washington, D. C.
50 *Undescended Testicle. Based on a Study of 77 Cases. Walter B. Odiorne and Channing C. Simmons, Boston.
51 I. Hypernephroma of Kidney. II. Fibro-adenoma of Inner Wall of Ileum. Francis S. Watson, Boston.

35. Etiology of Carcinoma.—Orth says that it is a matter of no consequence etiologically in proving the transplantability of cancer, to produce a secondary cancer even on another individual, but it is of consequence to produce a primary tumor. As long as that is not successfully accomplished, and that by means of an organism in pure culture, so long is also the parasitic nature of cancer not proved.

38. Operative Treatment of Mammary Cancer.—Warren has collected a series of 100 consecutive cases of mammary cancer taken from his hospital and private practice, in which at least three years had elapsed from the time of operation. These cases have all stood the test of careful microscopic examination, and their subsequent history has been followed up carefully, thus enabling him to give end results bearing on all important points. These cases represent the average, such as the surgeon would consent to operate on with hope of benefit, if not of cure, to the patient. The results illustrate what may be accomplished under the usual conditions of surgical practice. Recognizing the importance of early surgical interference, Warren makes it a practice in all cases of tumor of the breast, in which there is uncertainty as to the nature of the growth, to explore the gland through the so-called Thomas incision, and thus arrive at the earliest possible diagnosis. In five cases it was evident that cancer had developed as a secondary process in either a cyst wall or in that chronic inflammatory condition of the gland tissue which is the accompaniment of cystic degeneration. All but one of these cases are reported as cures. In another case cancer was found growing in a small fibroma which had existed for over twenty years. Warren considers this strong testimony in favor of early operation of non-malignant tumors of the breast. In six cases there was a history of abscess; in 16 some kind of blow; in 18 cases there was a family history of cancer. The disease was most commonly observed in the sixth decade of life, 36 cases occurring between 50 and 60, 14 cases between 30 and 40, 28 cases between 40 and 50; 15 cases between 60 and 70, 5 cases between 70 and 80. The average age of those cured by operation was 52.9 years; the youngest was 31 years old, and the oldest 73. A pathologist was present at each operation and a provisional diagnosis made by the microscope at the time, also of the condition of the lymph glands removed, the dissection being continued until the last gland removed was reported not infected. Of the 100 cases 26 can be regarded as cured, that is, the patients are either alive (free from recurrence) or have died from other causes three years or more after operation. Seven of the 26 cases died, the cause and time of death being as follows: Apoplexy, 10 years after operation; cholera, 6 years; pulmonary hemorrhage, 14 years; grippe, 13 years; pneumonia, 10 years; apoplexy, 8 years, and pneumonia, 4 years after operation. Of the remaining 19 cases one each is alive at 20, 19, 18, 14, 11, 10, 4 and 3 years after operation;

two each 10 and 8 years, three 7 years, and five 5 years after operation. The percentage of cures in each variety of cancer is as follows: Colloid, 2 cases; cured, 2; 100 per cent. Cancer, 26 cases; cured, 6; 23 per cent. Scirrhus, 28 cases; cured, 12; 42 per cent. Medullary, 40 cases; cured, 3; 7 per cent. Paget's disease, 1 case; cured, 1; 100 per cent. Adenocarcinoma, 3 cases; cured, 2; 66 per cent. Warren divides the clinical course of his cases into stages. The first stage includes all cases in which the disease still remains practically in the condition in which it was when first discovered by the patient. The second stage marks the beginning of the period of visible activity in the growth. In the third stage are included all cases which have advanced beyond the immediate neighborhood of the primary focus, and have involved adjacent regions, either by direct extension or by metastases. The summary of cases made on this basis is as follows: First stage, 45 cases; cured, 19; 42 per cent. Second stage, 35 cases; cured, 6; 17 per cent. Third stage, 18 cases; cured, 1; 5 per cent. In 2 cases death resulted from the operation, and, therefore, these are not included in this list. Of 23 cases in which the skin was adherent to the growth, 6 died within a year after operaton, 5 within two years, 1 within three years, 1 five and a half years after operation. Two recurrences, four years after operation, are alive and well, and there are four cures, 13, 10, 6 and 4 years after operation. Adhesion of the skin diminishes the chances of cure by one-third. In 72 cases enlarged glands were felt in the axilla, no axillary involvement in 17, no record in 11. Of the 17 cases 11 are cures, 64 per cent. Among the 26 recorded cures 12 cases had enlarged axillary veins, no glands in 11, no record in 3. Of the 72 cases in which enlarged glands were present there were 8 in which glands were also felt above the clavicle. One of these cases died at the operation. Six that died with recurrence had lived on an average, 1.8 months after operation. One is living with recent recurrence 8 years after operation. In 61 cases in which death occurred from recurrence, the average duration of life after operation was 2 years and 1 month. In 52 cases recurrence took place on an average 1 year and 10 months after operation. Of the 61 cases 12, or 19 per cent., died after the three-year limit. After a period of 5 years the percentage is as low as 8, and it is not until 9 years have elapsed that no deaths occurred. Of 9 living cases in which there is a history of recurrence, 2 that are cured have gone respectively 16 and 10 years since the last operation. In 14 cases the disease had advanced so far that a radical cure could not be expected, yet one lived 2 years, three lived 3 years and one died 8 years after operation. The situation of the disease was as follows: Upper outer quadrant, 17; center of breast, 12; upper hemisphere, 10; lower outer quadrant, 8; upper inner quadrant, 7; whole breast, 7; outer hemisphere, 7; lower hemisphere, 3; lower inner quadrant, 1; inner hemisphere, 1; axillary border, 1. The average duration of the disease in the 100 cases was 11.8 months before treatment, but the average duration in the 26 cured cases was 12.3 months. Retraction of the nipple was recorded in 22 cases. The operation performed in the first 50 cases consisted in a removal of the breast and of the pectoral fascia and a dissection of the axilla. In the second 50 the "completed" operation was performed, both pectoral muscles being removed, the clavicular portion of the pectoralis major being left behind and the posterior cervical triangle frequently dissected. The results of operation in the two series of 50 cases show a slightly greater number of cures where the lesser operation has been performed. In the first 50 there were 14 cures and in the second 50 only 12. In the series of 100 cases there were 2 deaths from the operation, 1 from acute septic infection, due apparently to the fact that the patient was put in a bed previously occupied by a case of erysipelas, and the second case was one of pulmonary embolism caused by allowing the patient to sit up too soon and to move about too freely after operation. Speaking of cancerous infection during the operation, Warren says that it is his habit to act on the supposition that such danger exists, and throughout the operation to attempt to keep the parts exposed protected as much as possible by gauze packing. His modification of the Halsted operation has the advantage that nine-tenths of the wound is not exposed, nor, in fact, touched by an instrument until the close of the operation, presenting, therefore, much less danger of cancerous infection. In exploratory incisions instruments should be changed and the wound leading to the disease temporarily closed by suture or packed with gauze, so as to protect the operation wound as thoroughly as is possible.

40. **New Method of Closing Wounds of Large Arteries.**—Brewer records experiments undertaken with a view of obtaining some new and simple method of closing accidental wounds of the larger arteries. Experiments were carried out as follows: As soon as the artery is exposed it is brought to the surface of the wound and incised with the point of the scalpel. The vessel is then compressed above and below the wound to prevent excessive hemorrhage, and the sheath carefully removed. The artery is next cleansed of all blood by the use of a small pledget of gauze moistened with ether. As the ether evaporates the vessel wall is left clean and dry. A small strip of a specially prepared plaster sterilized by formaldehyd vapor is next passed beneath the vessel, and the two corners held by two small artery forceps. The strip is then put gently on the stretch and the lower extremity of the strip held by clamps placed firmly in contact with the vessel, while the upper extremity of the plaster is slowly drawn upward. This causes the vessel to rotate with the plaster until the horizontal edge of the lower extremity of the plaster is on a level with the vessel and firmly adherent to it. The two clamps are then passed over the vessel and the plaster kept on the stretch while the operator, with thumb and forefinger, gently rotates the vessel backward, and at the same time compresses the enveloping plaster until it adheres snugly. The redundant plaster is then removed and the vessel allowed to fall back to its normal position in the wound. The wound is closed without drainage and the gauze and collodion dressing applied. Brewer is of the opinion that, in dogs at least, small wounds of the larger arteries can be successfully treated by the application of an aseptic elastic plaster. This plaster should be exceedingly thin, very adhesive and applied with the minimum of pressure on the vessel wall; and that, if the operation is carried out with perfect aseptic technic, the plaster becomes embedded in the tissues and produces no outward symptoms. Brewer says he would not hesitate to use this method on the human subject if an occasion presented.

43. **Celiac Parotitis.**—Among many complications, says Dyball, which may be met with after operations on, or diseases of, the abdominal and pelvic viscera, one of the rarest is parotitis. To this form of parotitis Dyball proposes to give the name celiac parotitis. He concludes that it is most probable that celiac parotitis is due to the action on parotic glands of toxic substances absorbed into the blood and derived from (a) the secretions of certain organs modified by injury or disease; (b) toxins of microbic origin (*Bacillus coli communis*) absorbed either from the alimentary canal, peritoneal cavity or bladder; (c) products of deranged digestion. In any given case of injury or of disease of the abdominal or pelvic viscera, the occurrence or not, of parotitis will, therefore, depend on the presence and on the absorption in sufficient quantity of some of these various toxic agents. Suppuration does not appear to be an esential feature of the condition, but is due to the fact that the parotid gland, when inflamed by the action of these toxic agents, forms a *locus minoris resistentiæ* and becomes secondarily infected by pyogenic organisms reaching it (a) by the blood stream; (b) by Stenson's duct. Dyball suggests this theory as one which affords an explanation of all cases, and which is in accordance with present knowledge of the colony.

44. **Duodenal Ulcer.**—Mayo reports 59 operations in 58 cases; 7 for acute conditions developing with one exception, on chronic ulcer, with 3 deaths. Fifty-one operations for chronic conditions gave one death. He says that at the present time posterior gastroenterostomy appears to be the operation of choice in the chronic cases.

50. **Undescended Testicle.**—Odiorne and Simmons performed orchidopexy 7 times in children ranging in age from 5 to 13

years. In but two instances was a perfect result obtained, and this in the same patient, aged 13, who had double retention. Both testicles are normal in size, position, and probably in functionating power. Two other boys were operated on at the same age, 13, and in both the testicles have remained in the scrotum. Although they have retracted to a position high in the scrotum, they are not in contact with the pubic bone. Neither testicle is notably atrophied. One of the patients suffers some pain. One case, aged 11, has a poor result, the testicle being much atrophied and fixed firmly just outside the ring, where it is a constant source of pain, and would better be removed. Two children were 5 years old at operation. In one the testicle drew up into the canal, where it remains very small and undeveloped; in the other it retracted to the pubic region, where it has as yet given no trouble. The only really satisfactory results were in the 4 cases, aged 13. As a result of 11 operations performed on adults of from 16 to 42 years of age, 5 testicles have remained in the scrotum, 4 of them occupying a high position in it, while the remaining one is in almost perfect position and fully one-half normal size, yet is the seat of frequent inflammatory attacks due to injury. Three testicles retracted soon after operation into the canals, where they remained very much atrophied. One of them is the cause of much pain. Two have retracted to the pubic region, where they are the source of considerable annoyance, undoubtedly due to their position. One of these is atrophied. In every case in which the organ appeared normal at the time of operation there has been a subsequent diminution in size. In two cases, however, the atrophy is not very marked, the testicle being fully one-half normal size. In 2 cases symptoms were distinctly relieved, in 3 not relieved and in 2 others were aggravated. In no case has there been a recurrence of a complicating hernia.

Northwest Medicine, Seattle, Wash.

December.

52 *Chorea in Pregnancy. J. M. Semple, Spokane, Wash.
53 *Preliminary Report of Results Obtained with Extravisceral Ligature in Enteroenterostomy and in Gastroenterostomy. R. C. Coffey, Portland, Ore.
54 Heart Failure Due to Acute Indigestion. L. R. Markley, Bellingham, Wash.

52. **Chorea in Pregnancy.**—Semple says that the perils of chorea in pregnancy are so great that when the symptoms increase, in spite of medical and moral treatment, and the sleep is becoming disturbed, the only course left for the physician is to induce premature labor, which gives the patient the only chance of recovery.

53. **Extravisceral Ligature.**—After having performed an enteroenterostomy and a gastroenterostomy, Coffey suggests the picking up of the side of each intestine entering into the anastomosis and tying it with a strong silk or linen thread, including as much of the intestine as necessary to make a hole of the desired size. Then take a Lembert suture and sew the intestines together, surrounding the two portions of intestine entirely with the suture. This method is a modification of that of McGraw, and is the result of a suggestion made by Weir that an opening between two hollow viscera would be better and more permanent, if it could be made in the form of a hole, like that punched through leather in harness-making, than the simple slit made by the McGraw ligature.

Archives of Pediatrics, New York.

December.

55 *Recurrent Vomiting in Children. B. K. Rachford, Cincinnati.
56 *Pyloric Stenosis in Infancy. Report of Case; Gastroenterostomy; Recovery. Henry L. K. Shaw and Arthur W. Elting, Albany.
57 Bronchial Asthma in Infants and Children, with an Analysis of 43 Cases. L. E. LaFetra, New York.
58 Gc [illegible] Huber, New York.
59 *Ca [illegible] Simulating Acute Scarlatinal [illegible] hington, D. C.

55. **Recurrent Vomiting.**—Rachford's treatment of the prodromal stage is as follows: One-quarter of a grain of calomel and 5 grains bicarbonate of soda are given every half-hour until 2 grains of calomel are taken. If the stomach is not too irritable the calomel should be followed, in two or three hours, by a saline laxative, and four or five hours later by benzoate of soda in from 3 to 8 grain doses every two or three hours, dissolved in essence of pepsin and peppermint water. No food whatever should be given. Water may be allowed if the stomach will retain it. The curative treatment consists of the carrying out of proper hygienic measures and a carefully restricted and selected diet. Sources of reflex irritation should be sought for and, if possible, removed. In the medicinal treatment Rachford considers the wintergreen salicylate of soda and the benzoate of soda most valuable remedies, and describes them in the following combination:

℞. Sodii salicylatis (gaultheria)..............ʒi 4
Sodii benzoatis ....ʒii 8
Pepsin essence ....fʒii 60
Aquæ menth. pip.........................fʒii 60
M. S.: Teaspoonful after meals for a child 6 years of age.

In the more severe cases this prescription must be continued for months at a time and, after this, is to be given once a day for an indefinite period.

56. **Pyloric Stenosis in Infancy.**—Shaw and Elting attempt to show that pyloric stenosis in the infant is of much more frequent occurrence than is commonly supposed, and that medical treatment of these cases is both uncertain and unsatisfactory. They advise early surgical interference, before the strength and vitality of the patient have become seriously reduced, either pyloroplasty or anterior gastroenterostomy being the operations of choice.

59. **Carbolic Acid Poisoning Simulating Acute Scarlatinal Nephritis.**—Adams' case, a girl, aged 10 years, had a moderately severe attack of scarlet fever without any troublesome symptoms. It was impossible from beginning to end even to approximate the quantity of urine passed in any twenty-four hours, as the mother invariably had an excuse for not keeping it or not measuring it. At the time of the seventh visit the child complained of intense itching. The mother was instructed to bathe her twice daily with a teaspoonful of carbolic acid to the quart of water (1 to 256). The itching was allayed and there was neither tingling nor irritation of the skin from the carbolic acid. Thirteen days later the patient passed a fair quantity of dark urine which was found to contain carbolic acid. The eyes were only slightly puffed; otherwise the girl was in fine condition. Adams is satisfied that the nephritic symptoms which appeared were due to the irritation of the drug and not to the toxemic effect of the scarlatina. This opinion was confirmed by the speedy relief of the kidney irritation with the elimination of the carbolic acid.

The Medical Mirror, St. Louis.

November.

60 Tent Life for Invalids in Colorado. C. F. Gardiner, Colorado Springs.
61 In the Matter of Syphilis, Treatment of the Individual Is Scarcely Second in Importance to Treatment of the Disease. G. M. Phillips, St. Louis.
62 Definite Records of Physical Signs. C. E. Quimby, New York.
63 Some Remarks on External Urethrotomy. R. Harrison, London, England.
64 Granular Urethritis. D. F. Talley, Birmingham, Ala.
65 Examination of Urine. D. C. Summers, Elm Springs, Ark.

The Texas Medical News, Austin.

November.

66 Autotoxemia or Malaria. B. H. Brodnax, Brodnax, La.
67 Unch [illegible] W. P. Dunbar, Campbell, Teas.
68 The [illegible] the Pelvic Floor and Perineum. E. B. [illegible]

The Journal of the Medical Society of New Jersey, Newark.

December.

69 The Treatment of Angiomata by Boiling Water. J. A. Wyeth, New York.
70 Some Abuses and Uses of Cardiac Stimulants. W. B. Stewart, Atlantic City.
71 Infection by the Bacillus Aerogenes Capsulatus. W. P. Eagleton, Newark, N. J.
72 Injuries of the Eye. T. R. Chambers, Jersey City.

The Kansas City Medical Index-Lancet, Kansas City.

December.

73 Infections of the Urinary Tract with the Common Colon Bacillus. R. McE. Schauffler, Kansas City.
74 Stricture Retention—Its Surgical Treatment. H. Hill, Kansas City.
75 Some Diseases of the Biliary Passages, with Report of Cases. W. F. George, Kansas City.

The Medical Herald, St. Joseph.

December.

76 An Address, University Medical College. F. B. Tiffany, Kansas City.
77 Is It Mental Trauma? S. G. Burnett, Kansas City.

Atlanta Journal-Record of Medicine, Atlanta.

December.

78 Lumbar Puncture, a Direct Method for the Treatment of Tetanus with the Report of 9 Successful Cases so Treated W. T Bivings, Atlanta
79 Compulsory Returns of All Cases of Pulmonary Tuberculosis the First Step Toward Public Measures of Prevention and Treatment E R Corson, Savannah
80 Acute Alcoholism C C Stockard Atlanta
81 A Case of Calculus W L Champion Atlanta

St. Paul Medical Journal.

December.

82 [illegible] Report of a Case Operated On
83 [illegible] Brookings, S D
84 Hey's Internal Derangement of the Knee joint John Knott, Dublin
85 Symptoms and Diagnosis in Injuries to the Abdomen George H Norris, Clearwater, Minn
86 Tuberculosis of the Kidney John T Rogers, St Paul

Southern Practitioner, Nashville.

December.

87 Hysteria J R Buist, Nashville
88 Diseases of Children's Teeth and Treatment W C Gillespie, Nashville.
89 Hepatic Insufficiency Hubert Richardson, Baltimore

The Laryngoscope, St. Louis.

November.

90 Some Points in the Pathology of "Bone Cysts" in the Accessory Sinuses of the Nose A L Turner, Edinburgh
91 The Applied Anatomy of the Frontal Sinus H P. Mosher, Boston.
92 The Sphenoidal Sinus and Its Surgical Relationship H. H Curtis
93 Fourteen Cases of Chronic Multiple Sinusitis (Maxillary Antrum, Ethmoid Cells and Sphenoid Sinus) Operated On by Way of the Maxillary Route T P Berens Chicago
94 Orbital Infection from the Ethmoid Cells with Spontaneous Opening at Inner Angle of Orbit. C. E Munger, Waterbury, Conn
95 A Report of Four Cases of Sinusitis in Children Operated On. L A Coffin, New York
96 Purulent Otitis Media Complicating Typhoid Fever E W Day and Chevalier Jackson Pittsburg

Northwest Medicine, Seattle.

November

97 Helps and Hindrances to Proper Pre Natal Conditions W C. Hastings, Seattle, Wash
98 Diagnosis of Diseases of the Skin R W Schoenle, Seattle, Wash

The Alabama Medical Journal, Birmingham.

November.

99 President's Address, Medical Society of State of Alabama M B Cameron
100 The Importance of Thorough Chest Examinations in Office Practice J. D Heacock
101 The Ovary and Its Functions—A Study in Minute Anatomy E H Sholl
102 Major Operations Performed at St Vincent's Hospital E M Robinson

Pacific Medical Journal, San Francisco.

November

103 Neglected Opportunities by the Patent Medicine Man E H Smith, San Francisco.

The Central States Medical Magazine, Anderson, Ind.

November.

104 Some Surgical Suggestions M A Austin, Anderson, Ind
105 Dust Water and Milk as Sources of Infection S E Earp, Indianapolis
106 Case of Poisoning by Antiseptic Tablets Leonard W Brown, Indianapolis

Fort Wayne Medical Journal-Magazine.

November

107 Endocarditis as a Complication of the Acute Infectious Diseases B P. Weaver, Ft Wayne.

The Providence Medical Journal.

November

108 The Case of Injury to the Cervical Portion of the Spinal Cord with Postmortem Examination J H Morgan
109 Injuries of the Eyeball, with the Report of Seven Cases V L Raia
110 The Results of the Improper Treatment of Some Eye Affections G W Van Benschoten

Archives of Electrology and Radiology, Chicago.

November

111 Some Observations on the Medical Uses of the Continuous (Galvanic) Current D R Brower, Chicago
112 Three Cases of Inoperable and Recurrent Sarcoma Successfully Treated by the Roentgen Ray. G C Johnston, Pittsburg

The Clinical Review, Chicago.

December.

113 A Cause of Acute Appendicitis and the Treatment of Acute General Suppurative Peritonitis Due to Rupture of the Appendix A H Levings Milwaukee Wis
114 Infantile Hemiplegia L H Mettler, Chicago
115 The Construction of Hospitals for the Treatment of Contagious Diseases A J Ochsner, Chicago

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

December.

116 An Improved Method of Standardizing the Recruit H G Beyer, U. S A
117 The United States Army General Hospital at the Presidio of San Francisco, Cal A C Girard, U S A
118 Gunshot Wounds of the Ureter—Two Cases of Uretero vesical Anastomosis G T Vaughan Washington, D C.
119 Some Features of the Immediate Treatment and Transport of the Wounded in Naval Warfare C. F. Stokes, U S A
120 The Army Medical Service of Russia F Howard, London

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest

British Medical Journal, London.

December 10

1 Seven Cases of Thoracoplasty for the Relief of Chronic Empyema Hamilton A Ballance, London
2 Hydrocephalic Fetus Delivered by Spinal Tapping J W. Valentine, Edinburgh.
3 *Vomiting of Pregnancy. J. M. H. Martin.
4 Suggestion of a Cubic Centimeter Measure for Patient's Use J. Theodore Cash.

December 17.

5 *The Indications for Operative Interference in Diseases of the Stomach Robert Saundby
6 The Diagnosis and Surgical Treatment of Certain Cases of Chronic Indigestion Gilbert Barling.
7 *Duodenal Ulcer and Its Treatment D'Arcy Power
8 The Nature of the Malformations of the Rectum and Urogenital Passages F Wood Jones
9 The Germ Cell Theory of Cancer Albert S Grunbaum, London

3. Vomiting of Pregnancy.—Martin offers the following classification of this condition, and in doing so cautions that there may be vomiting due to phthisis or gastric ulcer coincident with pregnancy. 1. Where the nausea or sickness is light, with, at the most, retching, occurring usually in the forenoon and passing away just before or when quickening takes place, without producing any constitutional disturbance. 2. Where vomiting as well as nausea is of frequent occurrence, not confined to any period of the day, and resulting in appreciable failure of health and emaciation. 3. Where vomiting is so constant and persistent that all food is rejected, rapid emaciation follows, with febrile disturbance, circulatory troubles, jaundice, dry tongue, quick pulse, delirium and threatened death. 4. Where organic disease is present, and it is difficult or impossible to say what share pregnancy has, in producing a dangerous or fatal result An extended clinical experience leads Martin to say that there is simple nausea with or without actual emesis, of physiologic and of reflex origin, a symptom only due to hyperemia, the developing uterus, vessels and nerves in a confined cavity. That malposition of the uterus, if the cause of so many troubles in ordinary conditions of health, must be a graver trouble in the pregnant woman, and thus increases the vomiting of pregnancy and consequent malnutrition and emaciation. That in the absence of uterine troubles and organic disease hysteria plays an important rôle and usually defies all therapeutic remedies If operation should be deemed necessary it should be carried out under thoroughly antiseptic conditions and anesthesia. Martin has found nepenthe by mouth and morphin by rectum most useful in the treatment of vomiting of pregnancy. The induction of abortion must be considered in those cases which come under the third and fourth divisions of his classification The responsibility of such an operation should be a divided one, and the patient should have the benefit of it before it is too late, not waiting too long under the hope that vomiting may suddenly subside, as it sometimes does Better attention to health and the greater inclination to athletic exercises and hygienic surroundings may have a tendency to counteract the artificial existence which has for so many years existed in the child bearing population.

5 Indications for Operation in Stomach Disease.—Saundby urges the importance of the assistance to be derived from surgery in the treatment of stomach diseases, the need for seeking surgical aid before the patient's strength is undermined by the duration of the disease, and the value of simple means of diagnosis. Surgeons should reconsider the claim to operate in every chronic ailment of the stomach which has not been relieved by medical means, to select their cases by studying the indications which justify operative interference, and to avoid, so far as possible, operating on patients who are the subjects of general neurasthenia.

7. **Treatment of Duodenal Ulcer.**—Power attempts to show that duodenal ulcers are not very uncommon; that usually they are single, and more frequent in men than in women. These ulcers may perforate and cause acute symptoms, or they may heal, and by cicatrization lead to symptoms of chronic duodenal obstruction. Power says the sequelæ of a healed ulcer may be so remote that the symptoms are mistaken for those due to cancer of the pylorus, and the patient is allowed to drift from bad to worse under the erroneous notion of the day that he is bound to die. In many cases there is no means of recognizing the existence of the ulcer until it perforates or until the results of its cicatrization become manifest. The treatment of duodenal ulceration laid down by Power is as follows: 1. Direct suture of a perforated ulcer, the prognosis being less favorable than in similar cases of perforation. 2. The performance of gastrojejunostomy in cases of dilated stomach due to duodenal constriction, the prognosis being the most favorable of all the conditions for which this operation is performed at the present time.

The Lancet, London.

December 10.

11 *Abdominal Pregnancy in Women, Cats, Dogs and Rabbits. J. Bland-Sutton.
12 Diseases of the Nervous System Sometimes Regarded as Functional, with Particular Reference to Diabetes. W. Howship Dickinson.
13 *Some Unusual Effects of Movable Kidney. C. Mansell Moullin.
14 Ankylostomiasis in Westphalia, Hungary, and Cornwall. Thomas Oliver.
15 Case of Extradural Abscess Complicating Acute Middle-ear Catarrh without Perforation of the Membrana Tympani; Operation; Recovery. R. G. Henderson.
16 Curious Case of General Tuberculosis in which a Complete Cast of the Stomach Was Vomited. Edward Swales.
17 Morbilli Sine Morbillis. J. D. Rolleston.

December 17.

18 The Operative Treatment of the Conditions of the Gastrointestinal Tract which Result from Chronic Constipation. W. Arbuthnot Lane, London.
19 Benign Villous Tumor of the Renal Pelvis; Hematothorax; Nephrectomy; Recovery. H. Savory and W. Gifford Nash.
20 *Ethyl Chlorid as an Anesthetic in General Practice. Harvey Hilliard.
21 Case of Acute Lymphocythemia. Leonard S. Dudgeon.
22 Two Cases of Severe Cranial Injury. W. D. Chapman.
23 A Case of Congenital Hypertrophic Stenosis of the Pylorus in the Adult. A. Ernest Maylard, Glasgow.
24 Movable Kidney and Bilharzia Hematobia Affecting the Kidney. W. H. Clayton-Greene.
25 Case of Anencephalous Monster. H. Beattie.
26 *Appendicitis and Pregnancy: Notes of a Case with Operation and Recovery. H. A. Lediard and R. E. Sedgwick.

11. **Abdominal Pregnancy.**—In this paper Bland-Sutton brings forward facts in support of his contention that primary abdominal pregnancy is still an unverified speculation.

13. **Unusual Effects of Movable Kidney.**—In one case cited by Moullin a movable right kidney gave rise to a series of symptoms resembling very closely those ordinarily present in chronic gastric ulcer. The pain invariably came on from a quarter to half an hour after meals. Solid food made it worse, vomiting was frequent, and was rather encouraged as it relieved the pain. The stomach was not dilated or displaced. There was a little tenderness on deep pressure to the right of the epigastrium, but no tumor could be felt. Both kidneys were movable, the right one in particular, descending so far when the patient strained or coughed that it came quite below the thorax and the hands could be made to meet above it. In two other cases there had been repeated attacks of colic beginning in the right hypochondrium and resembling mild attacks of biliary colic, but bearing little or no relation to food. They rarely occurred at night. They were often attended by jaundice, which, however, rarely lasted longer than two or three days. There was tenderness in the right hypochondrium in both, especially after one of the attacks. The liver was not enlarged and no tumor could be felt when the patient was lying down. When standing up and leaning forward, supporting the weight of the upper part of the body on the hands, so that the abdominal muscles were relaxed, a sensation of deep resistance was felt over the region of the gall bladder, but the gall bladder could not be defined. The lower end of the right kidney could easily be felt in both patients when they were standing upright, but it was not movable in the ordinary sense of the term. In several other cases inflammation of the appendix was simulated very closely by movable kidney.

20. **Ethyl Chlorid Anesthesia.**—Hilliard describes the method of using ethyl chlorid, its dose, after-effects, clinical signs, and the preparation and posture of the patient. He considers this preparation an admirable anesthetic, either alone or with air, with nitrous oxid, with chloroform, with ether, with A. C. E. mixture, and as a preliminary to each of the last three for a large variety of surgical operations. It is contraindicated in diseases of the larynx, inflammatory lesions and tumors in, or adjacent to, the respiratory passages; goiter; all conditions giving rise to urgent dyspnea, and in long operations.

26. **Appendicitis and Pregnancy.**—The author's patient, aged 40, was seized with pains in the lower right half of the abdomen during the fifth month of pregnancy. Pain continued and was accompanied by constipation, but no vomiting. Poulticing relieved the pain for a few days, when it returned, accompanied by fever, constipation, swelling and tenderness in the right iliac fossa. She had had two similar attacks previously during pregnancy, and at about the same time. The diagnosis of suppurating appendicitis was made. An incision through the parietes in the usual place allowed the omentum to bulge forward into the wound. This omentum covered an abscess cavity containing about three ounces of pus. A gauze drain was inserted and the patient was put back to bed. Pregnancy was advancing and the movements of the child were both seen and felt, which did not tend to the formation of a good scar. Eventually, however, the wound closed. A month after the operation the patient miscarried, the child being dead. There were no complications, and the woman made an uneventful recovery. In view of the rapid growth of the uterus during the latter months of pregnancy, the author considered the advisability of procuring miscarriage. For some days after operation the wound seemed to get more and more extensive and gaping, and omentum was protruded. They felt that when the wound did heal several unpleasant possibilities might present during labor. The scar, recent and thin, might rupture; a large ventral hernia in all probability would form either during labor, with possible intestinal constriction as a result, or afterwards, in which case a second operation would be necessary for its cure. The risk of procuring miscarriage was thought to be sufficiently great to counterbalance what were, after all, only reasonable possibilities or probabilities, and nature finally and fortunately came to the rescue and solved all difficulties. Throughout her illness the patient had a singularly rapid radial pulse, and her temperature was almost uniformly subnormal and never rose above 99 except on three occasions.

Bulletin de l'Académie de Médecine, Paris.

Last Indexed XLIII, page 1905.

27 (LXVIII, No. 38, November 22.) Japanese Mosquito Expeller.—Chasse-moustiques japonais. A. Laveran.

Presse Médicale, Paris.

28 (No. 93, November 19.) *Les français aux congres médicaux de St.-Louis. P. Courmont.
29 Pathologie. Experimentelle et comparée. H. Roger.
30 Les formes frustes de scorbut infantil. V. Hutinel.
31 (No. 94.) *Les variations de la virulence et la chirurgie urinaire. Guyon.
32 (No. 95.) *Sur la création à Paris d'une maison de santé pour le traitement des maladies contagieuses dans la classe aisée. J. L. Faure.
33 Fees for Medical Attendance in Industrial Accidents.—Les honoraires médicaux dans les accidents du travail. E. Forgue and E. Jeanbrau.
34 (No. 96.) *Les injections à froid de paraffine. M. Broeckaert.
35 *Des modes mécaniques de purification du lait (milk). P. Diffloth.
36 (No. 97.) Une epidémie de béribéri a Marseille. P. A. Lop.
37 *Anatomie et physiologie pathologiques du foie cardiaque (cardiac liver). E. Geraudel.
38 *L'etat "naissant" des substances médicamenteuses (nascent state). M. Frenkel.
39 *Les matériaux de l'urine. M. Labbé and H. Labbe.
40 Les deux indications de la trachéotomie dans la tuberculose laryngée. A. Lermoyez.
41 *Sur le traitement des affections de l'oreille et, en particulier, du vertige auriculaire par la rachicentèse. J. Babinski. Abstract.

28. The French at the St. Louis Congress of Sciences.—Out of the 130 presidents' and 260 official addresses at this international congress, 28 were representative Germans, 13 Englishmen and 15 Frenchmen. The Austrians numbered 8 and the Japanese 4, Italians 3 and Dutch 2, while six other countries sent one representative each, and the Americans numbered about 300. Courmont and Teissier are both of Lyons, France, and with these exceptions the other representatives from France were not officially connected with any medical faculty. Courmont compares this apathy on the part of the French with the systematic organization of an imposing representation invariably sent by Germany on such occasions. The French are not seen at these international gatherings, he remarks, and people forget that they are among the first, if not the first, in the medical sciences. Thirty years ago students flocked from America to Paris to complete their studies; now they go to Vienna, Leipsic or Berlin, and pass by France. One of the principal reasons for this is the excessive centralization of Paris. Foreigners do not know that there are a number of fine medical schools outside of Paris, one having 1,200 medical students. Invitations to participate in the congresses are sent to Paris only. If the invitations for Germany had been sent to Berlin alone there would not have been so many representatives at St. Louis. He concludes with the remark: "If our friends across the sea would remember that there are many universities in France they would have more visitors and more representatives of French medicine to respond to their invitations."

31. Variations in Virulence and Urinary Surgery.—Guyon comments on the comparative rarity of ammoniacal cystitis now; "retentionists" get along for years without local or general mishaps, notwithstanding their retention and the rich microbian flora in their bladders. The microbes are kept in a state of hypovirulence by the more frequent emptying of the bladder and its occasional disinfection with silver nitrate. The germs do not wax virulent under these measures, and as they are capable of attenuating the virulence of the germs, no surgical intervention should be attempted on the urinary passages until the virulence has been attenuated by these or by other measures. The operation, instead of being a very dangerous one in a field of hypervirulence, thus becomes a very benign intervention in a hypovirulent field. Prostatectomy, nephrectomy, lithotrity and suprapubic incision under these conditions, after attenuation of the virulence of the germs, do not expose the subject to operative shock, nor to exacerbation nor renewal of the febrile phenomena. The only operations which are best done without delay are those where it is necessary to open some septic focus from infiltration of urine or the like, merely a simple, rapid incision.

32. Pay Hospital for Contagious Diseases.—Faure suggests the advisability of establishing at Paris a well-equipped hospital for contagious diseases among the well-to-do. As each patient would have a separate room such a hospital would be expensive, and he adds that it might be better to have several small ones for each disease, measles, scarlet fever, diphtheria, etc.

34. Syringe for Injecting Cold Paraffin.—Broeckaert gives an illustration of his improved syringe which by the pressure of a screw forces out the cold paraffin in a soft, thin stream. Its advantages over other syringes of the kind are that only one hand is used. The screw is worked by an automatic lever which also serves as the handle for the syringe. By compressing together the two legs of this lever handle the screw is turned as rapidly as desired while the tip of the syringe is under complete control and the other hand is left free. He usually makes a pocket in the tissues with the tip of the needle to hold the paraffin before he injects it, and is enthusiastic in regard to paraffin prothesis as one of the finest acquisitions of modern surgery and. perhaps. one of the most fertile in its applications. He has sometimes obtained excellent results in the most discouraging cases by combining an autoplastic operation with the injection of paraffin.

35. Mechanical Purification of Milk.—Diffloth reports that great progress has been realized by the cotton filters, a Swedish invention, now used for purifying milk. The milk is strained through two wire strainers holding between them a flat, round, small sheet of cotton. The cotton is thrown away and replaced by a fresh disc of cotton after using. In eight months of tests with this cotton filter his inoculation of animals with the milk never caused morbidity, and the milk thus filtered could be kept for many days without souring. Diffloth regards the results of these tests as very remarkable in regard to the preservation of the chemical composition and of the digestibility of the milk, but as the milk was obtained from a model dairy they are not conclusive in respect to the microbes. Centrifugation has no effect on pathogenic germs in milk, or is liable to favor their proliferation. He adds that stock raisers have found it necessary to pasteurize "skim milk" from the creameries before feeding it to their pigs, as it is much harder to preserve than "skim milk" from natural cream rising. Centrifugation also interferes with what he calls the stereochemistry of the milk, that is the molecular arrangement of its constituents, and it has the further disadvantage that it expels the gases.

37. "Cardiac Liver."—Geraudel describes the pathologic anatomy of the congested liver in heart disease, commenting on the fragility of the liver in general and especially of the parenchyma surrounding the hepatic veins. The most remarkable feature of the "nutmeg" liver is the regional variation of the reaction of the organ to the injurious influences. The portal zone resists, but the zone around the hepatic veins rapidly yields. This imposes the necessity for guarding the subject with heart disease from any causes, alimentary, medicinal or of other origin, liable to reduce the resisting powers of the liver still farther, or to enhance the fragility of this zone around the hepatic veins.

38. Nascent State of Medicinal Substances.—Frenkel remarks in this continuation of his researches that each molecule of free oxygen contains two atoms, and the intraorganic oxidations occur only when the molecule has been split up into its atoms. Inside the body oxygen is split up into its atoms, which is the same as saying that it is in the nascent state. Ordinary oxygen in contact with the skin or taken into the stomach retains its molecular character and does not split up into atoms, but the peroxids do this. Hence their importance in therapeutics whether in the form of ozone (peroxid of oxygen), of peroxid of hydrogen, of magnesium or of zinc. These peroxids give up their oxygen, split into atoms, on contact with acids or ferments, and hence they allow, on the surface of the body, oxidations similar to the intraorganic vital processes.

39. Materials of the Urine.—Labbé presents arguments and data to corroborate the fact that the mineral substances in the urine owe their origin to the food. The proportion of chlorin, phosphorus and sulphur show the quantity and quality of the food taken. Exact knowledge of the diet and comparison of the ingesta with the excreta are indispensable for a proper study of the nutritive functions.

41. Lumbar Puncture in Ear Affections.—Babinski noticed that vertigo of aural origin was benefited by lumbar puncture. As the vertigo in such cases is due to irritation of the labyrinth, the idea occurred to him that the same measure might prove effectual in other affections of the labyrinth. He first established that rachicentesis does no harm from the standpoint of the ear. The occasional headache and nausea are transient and they are usually most pronounced in the subjects who derive most benefit from the intervention. He reports his experience with 106 cases thus treated. At first he allowed only 4 or 5 cm. of the cerebrospinal fluid to escape, but now he withdraws from 10 to 15. A single puncture is generally sufficient. but some patients require two or more. Out of 32 cases of vertigo, 21 of the patients were improved, including 7 who have been completely cured for six months at least. In 11 no benefit was apparent. The subjective symptoms were more rebellious. Out of 90 only 30 have found that the tinnitus was much improved. Deafness is still more rebellious, but occasionally cases were encountered in which the improvement seemed almost miraculous. In one case, a woman who had been deaf in one ear for six years subsequent to a suppuration, was able to hear the whispered voice at nearly seven feet. A man of 33 who had been a deaf mute from the age of two and a half, entirely deaf in one ear and almost completely deaf in the other, who had submitted to every imaginable form of treatment, was treated by puncture thrice repeated. No benefit was apparent after the first, but the second was followed by slight improvement, and now he hears the speaking voice at eight inches on the side in which the hearing had been supposed to be entirely lost. Pure labyrinthitis gives the larger proportion of successes, and in otitis media the phenomena due to irritation of the labyrinth are the ones most favorably influenced.

Berliner klinische Wochenschrift.

42 (XLI, No. 48, *November 28.*) **Carbonic Oxid Poisoning.*—Untersuchungen zur Kohlenoxydvergiftung. F. Strassmann and A. Schulz.
43 *Differential Importance of Retrogressing Paralysis of Vocal Cords.—Zur diff.-diagn. Bedeutung der zurückgehenden Stimmbandlähmung. W. Berent.
44 *Beitrag zur Kenntniss der Infectionswege bei Lungentuberculose. M. Wassermann.
45 *Acute Articular Rheumatism in Children.—Der acute Gelenkrheumatismus der Kinder. A. Baginsky. (Commenced in No. 47.)
46 (No. 49, Senator number.) **Zur Diagnose und Therapie der* cardiospastischen Speiseröhrenerweiterung (dilatation of esophagus). H. Strauss.
47 Ueber die chromophoren *Zonen bei der* vitalen Blutfärbung (blood staining). H. Rosin *and E. Bibergeil.*
48 Ueber familiäre Tabes dorsalis und ihre Bedeutung für die *Aetiologie der Erkrankung.* W. Croner.
49 *Roentgen Treatment of Blood Affections.—Zur Frage der Behandlung der Blutkrankheiten mit Röntgenstrahlen. R. Milchner and M. Mosse.
50 *Cure of Stricture by Mechanical Dilatation.—Heilung einer schweren Oesophagus-Narben-Strictur durch Sondenbehandlung. Wadsack.
51 *Metabolism During Convalescence from Inanition.—Ueber den Stoffwechsel im Rekonvalescenzstadium nach chronischer Unterernährung. P. F. Richter.
52 *Ueber die experimentelle Erzeugung von Lymphocyten-Exudaten. A. Wolff and A. von Torday.
53 Zur Diagnostik der Nierentuberculose (of kidney). R. Milchner.
54 Senator in Forensic Medicine.—Senators Bedeutung für die gerichtliche Medicin. C. Strauch.
55 Senator's Works on Functions and Pathology of Skin.—Senator's Arbeiten über Hautfunction, Hautkrankheiten und Syphilis. R. Ledermann.

42. Carbonic Oxid Poisoning.—Strassmann and Schulz have been studying to learn if it is possible to distinguish between *poisoning from without and poisoning from within* by this agent, that is, whether it was inhaled during life or permeated the tissues after death. They experimented with illuminating gas, using the sensitive palladium chlorid test. The gas was introduced into the air-tight coffin holding the cadaver, and sometimes the tube was placed in the mouth. The results showed that there is no part of the body into which the carbon oxid does not penetrate in time, whether the gas is pure or diluted with air, stagnating or constantly renewed. A very *important sign* that the gas has penetrated from without is the difference in color of the hemoglobin in the muscles as they are nearer or farther from the surface of the body. There is no qualitative difference between the findings after carbonic oxid poisoning and of postmortem diffusion, but the quantitative difference is marked when the body has not been very long exposed to the gas. If completely saturated with it there may be no difference of any kind. In a recent case a woman was found dead with the tube of her gas stove in her mouth and the stopcock open. A relative asserted that criminal abortion had been forced on her and that the gas accessories were merely to divert suspicion. No traces of recent abortion could be discovered and tests for carbonic oxid in the blood aided in confirming the assumption of suicide.

43. Retrogressing Paralysis of Vocal Cords.—The postmortem findings in the case of fatal aneurism described and illustrated showed that the sac had become filled with coaguli during life. As they formed, the aneurism was not distended to quite the same extent as before, thus relieving the pressure which had induced the paralysis of the vocal cords.

44. Routes of Infection for Tuberculosis.—Wassermann believes that pulmonary tuberculosis frequently starts at some point in the lining of the mouth or throat or even in the ear. This lesion involves in turn the glands in the neck, the infection working downward and inward. The pleura is next involved and later the hitherto intact lung. This passage of the infection through the chain of organs to the intact lung and the tuberculization of the latter form a sequence which is frequently observed. He cites a few cases in illustration, among them that of a child with enlarged glands in the neck. The grandmother rubbed salve vigorously into the glands and the swelling subsided, but the bacteria forced out of the glands by the massage evidently passed into the pleura with resulting pleuritis, followed by infection of the lung. The assumption of this route for the infection needs to be confirmed by anatomic study of the lung apex *in situ*, not after it has been pulled out. If the findings were to indicate that the infection had been propagated from the parietal to the visceral pleura, then there could be no further doubt as to the correctness of this assumption.

45. Acute Articular Rheumatism in Children.—Baginsky has *never found the blood essentially abnormal.* The anemic appearance is probably due to the lessened blood pressure and the smaller amount of blood in the vessels. He protests against the dumping of chorea in the general receptacle for infectious affections—there are probably *two main groups*, the rheumatic and the nervous choreas. In 64 cases of chorea he found only 20 in which there were any rheumatic antecedents. *Aside from chorea, nervous manifestations were rare* in his experience with rheumatism except that cerebrospinal meningitis was sometimes associated. The distinguishing feature of acute articular rheumatism in children is the early and almost inevitable involvement of the heart. All except 7 of the 76 cases in his experience presented evidences of lively irritation or inflammation in the heart. In 17 cases there was apparently complete restitution of the heart, but in 41 others some cardiac defect developed sooner or later. The proportion of cases with intact heart was 12 per cent.; of complete recovery, 23 per cent.; of permanent heart defects, 62 per cent., and of deaths, 9.9 per cent. The postmortem findings demonstrated that the special and most prominent anatomic reaction of the heart in childhood to the irritation of the rheumatic virus is a fibrinous pericarditis with adhesions, and a tendency of the fibrinous exudated and proliferating products of the inflammation to become transformed into connective tissue, with the heart and pericardium completely grown together. The organism usually manages with this immovably fastened organ until the stress of puberty. Salicylic medication has no effect on the heart complications either for prevention or cure. He relates experiences with various drugs, including subcutaneous injection of carbolic acid, all to no avail. The only one that seemed to do any good was potassium iodid, from 1 to 3 gm. a day. This seemed to alleviate the symptoms of severe inflammation in cases of pronounced pericarditis and endocarditis. It sometimes had a magical action in reducing the fever, moderating the local inflammation and combating the most dangerous symptoms of the disease. His experience with antistreptococcus serum has been slight and rather unfavorable.

46. Diagnosis and Treatment of Cardiospastic Dilatation of Esophagus.—Strauss has modified his method previously described in these columns, and describes its mode of application and the results. One patient had presented symptoms of cardiospasm for ten years. The stomach tube introduced into the esophagus revealed evidences of stagnation. Pushing it farther down into the stomach evacuated food relics showing traces of digestion, entirely absent in the slimy mass removed from the esophagus. The sound with the inflated rubber bag afforded reliable information in regard to the size of the dilated esophagus. Its capacity was 350 c.c. in the typical case described. The sound projects into the stomach, and air blown through it can be recognized by auscultation. Pressure on the stomach region also disturbs the water in a connected jar. By this means it is possible to exclude a diverticulum, as in-case of the latter it would be impossible to push the sound down into the stomach without first withdrawing it a certain distance. The inflammation in the esophagus healed on removal of inciting causes, on resorting to rectal feeding and ingestion of oil, butter and minimal amounts of fluids, with tannin per os. Systematic stretching of the cardia was not undertaken until all symptoms of inflammation had subsided. The instruments used were all soft and flexible. One was a soft rubber tube with a hollow, spiral metal guide terminating 2 cm. from the tip of the tube. With this the esophagus was gently inflated as the tube was introduced, which has a tendency to open the cardia by the traction. When this appliance had been systematically used for a time he changed to one which has a spindle-shaped bag on the stomach tube. The air bulb is connected with this and the esophagus gently dilated. When the collapsed bag passes into the stomach its presence there can be determined by ascertaining that the tip of the tube projects into the stomach (auscultation of air blown in, etc.) The air bulb is then detached from the stomach tube and changed to a T tube. The rubber bag in the stomach is then inflated, the amount of air necessary to distend it to a circumference of about 9.5 cm. having been previously ascertained. Gentle traction on the stomach tube brings the inflated bag back through the cardia, accomplishing the dilatation. The air is then released and the apparatus withdrawn. Patients treated on these principles are soon relieved of all their disturbances, and in the typical case described the young man gained 28 pounds in six weeks. A woman with the esophagus dilated to a capacity of 550 c.c. was restored to health and gained materially in weight by a few weeks of systematic dilatation of the cardia in this way, although the capacity of the esophagus had not been much reduced. She has been free from disturbances during the year and a quarter since. The superior advantages of the appliances described are that the softness prevents injury of the lining, the pneumatic principle of inflating the esophagus renders it much easier for the bag to pass the cardia, and the larger circumference of the bag renders the dilatation more effectual, while a safety contrivance for the escape of the mercury prevents injury from too great pressure.

49. **Action of Roentgen Rays on Blood Affections.**—The experimental research on rabbits reported demonstrated that close exposure to *x*-rays causes the myeloid and lymphoid cells to vanish from the bone marrow while the red corpuscles remain unaffected. The findings confirm the clinical observation that pernicious anemia is not influenced by Roentgen treatment while leukemia is liable to show marked improvement owing to disappearance of the lymphoid and myeloid tissue. Red corpuscles suspended in salt solution and exposed for two hours to the rays were apparently unaffected by them.

50-51. **Mechanical Dilatation of Esophageal Stricture.**—An impermeable cicatricial stricture of the esophagus in a girl of 17 was dilated with a Crawcour spiral sound introduced for a quarter of an hour daily until fluids could be ingested. Further dilatation was accomplished with Senator's swelling sound, that is, a sound on which a laminaria tent is fastened. About fifteen minutes after its introduction the patient feels the pressure of the swelling tent in the stricture; when it becomes unbearable the sound is removed. The success of this mechanical dilatation was most striking. In six weeks the patient was eating normally and gained 66 pounds in seventy days. Richter's article reports the findings in regard to the metabolism during convalescence.

52. **Experimental Production of Lymphocyte Exudates.**—Wolff recalls that Senator in 1893 was the first to suggest the possibility of an active lymphocytosis. He proposed this as an explanation for the finding of lymphocytes in the urine in certain cases of nephritis. Wolff has been seeking some means of influencing the lymphocytes and of inducing active lymphocytosis by chemotactic or other means. He first undertook research to determine whether the lymphocyte reaction is of the same biologic importance in different species, and whether the agents found to induce lymphocytosis in one have the same action in other species. The results demonstrated that injection of tetanus and diphtheria toxin is able to induce exudation of lymphocytes, persisting for one to twenty-four hours after the injection. The mouse has a special tendency to lymphocytosis. The substances which induce polynucleosis in the guinea-pig cause lymphocytosis in the mouse. A peritoneal injection of .1 c.c. of one of these toxins produces active lymphocytosis at will. In the guinea-pig similar injections cause lymphocytosis at first, gradually changing to polynucleosis after the first hour.

Centralblatt f. Chirurgie, Leipsic.

Last indexed XLIII, page 1908.

56 (XXXI. No. 44, November 5.) Zur Technik der Röntgen-Therapie. A. Schönberg.
57 *Zur Radikal-Operation der Schenkelhernie (femoral hernia). A. Hammesfahr.
58 Typhus-Reaktion in Abszessinhalt und Blut nach 23 Jahren (after 23 years). Harbordt.
59 (No. 45.) Zur Witzel'schen Methode der hohen Rektum-Amputation. C. Hofmann.
60 Eine Modifikation bei der Oberschenkel-Amputation sec. Gritti. M. Silbermark.
61 Technic of Sawing an Arc.—Wie erleichtert man sich das Sägen im Bogen? C. Bayer.
62 (No. 46.) Meine zweite Methode der Magen-Resektion (of Stomach). L. Rydygier.
63 (No. 47.) *Gelenktuberkulose und Trauma (joint tuberculosis). N. N. Petrow (St. Petersburg).
64 Eine Kieferklammer (jaw clamp for narcosis). A. Hofmann.
65 (No. 48.) *Woody Phlegmon of Neck.—Zur Kenntnis der sogenannten "Holzphlegmone" ("Phlegmone ligneuse du cou" nach Reclus). H. Merkel.

57. **Radical Operation for Femoral Hernia.**—Hammesfahr closes the femoral canal by fastening Poupart's ligament to the crest of the horizontal ramus of the pubis. After the hernial sac has been resected and the stump reduced, he drills three holes in the upper margin of the ramus. They are drilled from the front and slant upward so that the inner opening is close beneath the edge of the crest. Strong silk is then passed around Poupart's ligament and then through the holes and tied firm. This fastens the ligament to the bone like the periosteum, and it probably becomes adherent. The ligament can be said to start at the crest of the pubis, toward the median line from the femoral vein. Aseptic healing can be counted on if silk, boiled and kept in Claudius' 1 per cent. iodin-iodid solution, is used and thread gloves worn.

63. **Joint Tuberculosis and Trauma.**—Petrow gives illustrations of the joints of animals after peritoneal inoculation of tubercle bacilli. The joints and epiphyses were clinically and macroscopically intact, but the microscope revealed tubercle bacilli latent in the marrow of the epiphyses in 14 out of 312 sections, the positive findings being from 8 animals which had succumbed to tubercular peritonitis four or five weeks after inoculation. Further experiments with infected joints exposed afterward to trauma demonstrated the unmistakable action of trauma in accelerating the progress of the infection. In another series of experiments he established that a severe trauma affecting a joint is liable to favor the localization at this point of chronic tuberculous infection.

65. **Woody Phlegmon of Neck.**—Merkel describes a typical case of Reclus' "phlegmone ligneuse" developing in the course of four months. The process evidently started in the tonsil and burrowed outward, spreading under the skin and inducing dyspnea and dysphagia, pain and slight temperature. An incision was made in the hard, woody tumor, under chloroform, and a tablespoonful of pus evacuated, after which the tumor rapidly softened and in two months not a trace was left. The patient connected the tumor with the fact that he had held a knife for a few moments in his mouth after he had just slaughtered with it a cow presenting lesions of actinomycosis. But nothing about the phlegmon suggested an actinomycotic process.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed XLIII, page 2054.

66 (XXVIII, No. 46, November 19.) *Remote Results of Incision of Portio and Vagina for Rapid Delivery.—Heilungsresultate nach vorderem Gebärmutter-Scheidenschnitt und deren Bedeutung für die Bewertung dieses Schnellentbindungsverfahrens. H. v. Bardeleben.
67 *Zur Hebotomie. G. Leopold (Dresden).
68 Ueber die Symphyseotomie. D. v. Velits.
69 *Meine Technik des Lateralschnittes (lateral section). L. Gigli (Florence).

70 Prolapse of Omentum.—Netzvorfall, in einer 8 Jahre post operationem geplatzten Koliotomie-Narbe. Westphal.
71 Suture of Recent Lacerations.—Zur Naht frischer Scheiden-Damm-Risse. H. Rose.
72 Open Wire Model of Infantile Skull for Study of Diameters.—Gefenstertes Modell des kindlichen Schädels zur Darstellung der Durchmesser. G. Burckhard (Würzburg).
73 (No. 47.) Zur Frage der Opitz-schen Schwangerschaftsdrüsen (pregnancy glands). M. Schwab.
74 *Beitrag zur Symptomatologie der Retroflexio uteri, mobilis. W. Nacke.
75 Foreign Body Stone in Bladder.—Entfernung eines von Blasensteinen umgebenen Gänsekieles aus der Harnblase. P. v. Kubinyi.
76 Doppelseitige Mastitis in der Gravidität im Anschluss an ein impetiginöses Ekzem der Brustwarzen. A. Calmann.
77 Zur Technik der Amputation des invertierten Uterus. E. Falk.
78 (No. 48.) *Gefährliche Blutung aus den Harnwegen während der Gravidität (hemorrhage from urine passages). P. v. Kubinyi.
79. Tod intra partum durch innere Verblutung infolge Ruptur eines Mesenterialgefässes (death from internal hemorrhage). Jacoby.
80 *Lokal Anästhesie mittels Eukain-Adrenalin. H. Freund.
81 Fall von Hernia abdominalis uteri gravidi. A. Rosner.

66. **Ultimate Results of Anterior Utero-Vaginal Incisions.**—Bardeleben reports 8 cases examined for the remote results of rapid dilatation by means of an incision through the portio and vagina. There was no hemorrhage, no discharge in any instance, nor retroflexion, and in only 1 was anteposition and in 2 retroversion with anteflexion noted. The advantage of the incision is that one can control the evacuation of the uterus in a given time, and the wound is in the best possible condition for repair. Instrumental dilatation is under less complete control, and in case of unyielding tissues there is danger of laceration, after which the prospects for repair are much less favorable.

67. **Extramedian Symphyseotomy.**—Leopold has performed the Gigli operation in 5 cases recently. It proved simple and easy of execution and the lying-in period was free from complications of any kind. He gives the details, the results confirming Gigli's assertions in every respect.

69. **Gigli's Technic for Extramedian Symphyseotomy.**—Gigli qualifies ordinary symphyseotomy—from the surgical standpoint—as not a proper operation. His technic of extramedian symphyseotomy, however, is free from all its disadvantages while securing all that is claimed for it. The incision must be to one side of the articulation of the symphysis, and it must also be outside of the point of attachment of the pubovesical ligament. The line that best respects the relations between the bladder and the pubis, etc., is drawn from the tuberculum below, slanting upward toward the median line above, lying entirely along the bone. This avoids the points where the abdominal wall is weak and leaves the cartilaginous apparatus intact. It is well to draw the skin down so that there will be as much space between the incision and the genitalia as possible. The soft parts are then incised down to the bone, and then mobilized a little at top to allow the finger to feel the upper margin of the pubis. A blunt-pointed, curved needle is then easily passed from above behind the bone in the direction of the incision, and, guided by the finger in the vagina, it emerges at the proper point below, entirely avoiding the crura clitoris. There are no large vessels at the back of the pubis, and the needle curves up readily around the lower margin of the pubis. The wire saw is then fastened in the needle, which is then drawn back, the bone sawed and the operation is done. Both the immediate results—the absence of complications—and the remote—the permanent enlargement of the pelvis with no interference with the gait—speak in favor of this operation first made possible by Gigli's wire saw. He insists that it should be called "Lateralschnitt des Beckens," which may be translated "lateral section of the pelvis." Others call the operation "hebotomy," from the Greek term for pubis. [For convenience in indexing, the term extramedian symphyseotomy seems preferable for the present.—Ed.]

74. **Symptomatology of Movable Retroflexion.**—Nacke found that 14 per cent. of 265 patients with movable retroflexion and otherwise apparently normal genitalia had no symptoms whatever from the backward displacement. Of the others. 66 complained of backache alone, 37 of backache and other symptoms, and 125 of every possible symptom. The retroflexed uterus does not seem to cause disturbances so long as it is not enlarged and is free from pathologic changes. In case of congestion of the organ, increasing its size, or of irritation of its peritoneal investment from running, dancing, working the sewing machine, etc., the retroflexed uterus gives rise to pains which probably would not be the case if the organ were in anteflexion. The symptoms observed are probably due to slight changes in the tissues or in the nervous apparatus of this region from these causes.

78. **Hemorrhage from Varices During Pregnancy.**—Kubinyi has observed a case of complete retention of urine after sudden hemorrhage from the bladder at the eighth month of a pregnancy, the outlet of the bladder having become obstructed with a thick clot. The hemorrhage was traced to a varicose enlargement of one of the veins in the bladder. In another case an almost fatal hemorrhage occurred from a varix on the leg of a pregnant woman.

80. **Eucain-Adrenalin Local Anesthesia.**—Freund relates his experience with local anesthesia with a mixture of 2 parts of 1 per 1,000 adrenalin to 8 parts of a 1 per cent. solution of beta eucain, injected under the skin or mucosa or both. He regards it as indispensable for prolapse operations and for plastic operations on the perineum. No by-effects were ever observed in his extensive experience except that a few extra sensitive patients complained of transient smarting.

Dermatologische Zeitschrift, Berlin.

Last indexed XLII, page 1599.

82 (XI, No. 6, June.) *Ueber Pagets Disease. A. Jungmann and I. Pollitzer.
83 *Zur Radiotherapie. O. Lassar.
84 (No. 7.) Zur Kasuistik des Adenoma sebaceum. A. Buschke.
85 *Ueber Hg. Paraffin-Embolien. Voss.
86 Value of Alcohol Soaps in Dermatology.—Alkoholseifen. K. Gerson.
87 *Die Wasserbehandlung der Gonorrhoe und des Ulcus molle (water treatment). J. Sadger.
88 (No. 8.) Vasenol, eine neue Arzneimittelgrundlage für Salben, Pasten und Injektionsflussigkeiten (new vehicle). P. Thimm.
89 *Ueber eine Weiter-Impfung vom syphilitisch infizierten Schimpansen (further inoculation of ape). O. Lassar.
90 (No. 9.) Ueber einen interessanten Fall von Lepra mutilans. G. Demetriade.
91 Ueber ungewöhnlich lange Inkubations-Dauer der Gonorrhoe (unusually long incubation). M. Joseph.
92 Zur allgemeinen Pathologie der Syphilis und der sogen parasyphilitischen Erkrankungen. F. Lesser.
93 Ueber die Beziehungen des idrocystoms zur Granulosis rubra nasi. F. Pinkus.
94 Zur Histologie der Granulosis rubra nasi Jadassohn. E. Baumer.
95 Die Ursache der Alopecia praematura (cause). F. B. Solger.
96 Zur Vererbung der Syphilis (hereditary transmission). P. Misch.
97 *Improved Yellow Oxid Ointment.—Ueber die Verordnung und Zubereitung der gelben Salbe. F. Schanz.
98 (No. 10.) Zur Anatomie der Haut-Epitheliome. K. Kreibich.
99 *Kathoden Strahlem als Ersatz für Röntgen- und Radiumstrahlen (Cathode rays as substitutes). H. Strebel.
100 Report of Fifth International Congress of Dermatology, Berlin, Sept. 12-17. 1904.
101 (No. 11.) Ueber Finsen Behandlung. O. Lassar.
102 Demonstration von Paraffin-Prothesen bei Gesichts-Deformitäten und Gaumen-Defekten. H. Eckstein.

82. **Cure of Paget's Disease.**—In the case described, the affection known as Paget's disease of the nipple was located in the axilla. For this reason the authors suggest that the disease had better be called by a more descriptive name, and propose "chronic, circumscribed, eczemiform epithelial dermatosis." This term corresponds with the histologic findings which they describe in detail. The lesion was so extensive in the case reported, measuring 13 by 20 by 27 cm. in extent, and involving the upper arm and both the front and back of the chest, that the surgeons declared it inoperable, especially as the patient, a ix-para, was very cachectic. Excised scraps from the deeper part of the lesion showed the elements of a squamous-celled carcinoma, evidently originating in the epidermis. Roentgen treatment was applied, exposing the entire region in a single sitting to a radiation of 4 chromoradiometer units and the deeper parts to from 8 to 10 units. After two or three weeks a reaction of the first degree developed all over the lesion and as this subsided the lesion healed. In less than four months *nothing* was left of the cutaneous lesion but a few narrow strips, and in the depths of the affection exhibited progressive improvement. The general health improved, the patient has gained in weight, and the blood findings are nor-

mal. A further exposure of 3 to 4 units was made four months later, and again after a few weeks, one small strip in the axilla being treated with radium.

83. **Radium Therapy.**—Lassar gives illustrations of a number of patients with melanoma or cancroid cured by application of 1 mg. of radium bromid in a small capsule of lead foil on a sheet of mica. He thinks that his experience justifies him in proclaiming that neoplasms can be cured with radium in the hands of any physician. Although the first expense of redium is high, yet as its energy is inexhaustible, on the whole, it is cheaper than some other methods of treatment. All mishaps from its use can be confidently avoided by suspending the treatment at the slightest symptom of irritation, swelling, redness, pigmentation or tenderness. Medical oversight is imperative and the rather tedious exposures must not be left to subordinates. During the thousands of sittings in his institute no inconveniences of any kind were noted, and the results observed indicate that radium has a wide field of usefulness in dermatology. He is also enthusiastic in regard to the efficacy of Roentgen treatment of cancer. It frequently transforms an inoperable into an operable lesion, and is almost certain to cure the incipient recurrences of the growth. They are usually more superficial than the primary lesion. He cites a number of cases in detail, among them that of a woman of 50 who appeared nine months after radical extirpation of a mammary cancer. The growth had recurred in the form of numerous ulcerating nodules, the size of a pigeon's egg, scattered over the region from the axilla to the median line and down to the waist. His illustrations show that the nodules entirely retrogressed under the *x*-rays, and the patient has gained more than six pounds.

85. **Embolism from Mercury in Paraffin.**—Voss states that in a material of 1,373 persons treated with 13,671 injections of insoluble mercurial salts, suspended in paraffin, embolism occurred fifteen times. The proportion was one embolism to each 91 subjects. The salt generally used was Hg. salicylate in a .05 or .1 per cent. suspension in paraffin. The symptoms were invariably slight and transient, and embolism may be regarded as a harmless complication. The injections were always intramuscular.

87. **Hot-Water Treatment of Gonorrhea and Soft Chancre.**—Sadger reiterates that the application of heat reduces the length of treatment by one-half or more; it entirely prevents glandular enlargement; renders a bubo non-virulent, and insures its rapid healing after evacuation. It is not effectual before incision. The application of heat alone is better than to combine it with medication. Welander has thus treated more than 2,000 soft chancres, and the results were invariably most favorable. K. Ullmann's hydrothermoregulator is proving a simple and convenient mode for local and self-regulating application of heat in the form of hot water continuously circulating in an endless tube.

89. **Further Inoculation of Ape with Syphilis.**—From the illustrations given by Lassar it seems to be evident that he has succeeded in inoculating a second chimpanzee with syphilis, the virus being taken from the first chimpanzee previously reported. He thinks that these results offer a prospect for obtaining an effectual antisyphilis serum from chimpanzees in time.

97. **Prescribing of Yellow Oxid Salve.**—Schanz presents various arguments to show the defects in the current modes of prescribing and making yellow oxid salve. His improved formula is: Hydrarg. oxyd. flav. recent. pur. pultiform .1 to 1 gm.; aq. dest. and adip. lanæ anhydric., āā, 1 gm.; vasel. amer. alb. 10 gm.

99. **Cathode Rays as a Substitute for X and Radium Rays.**—Strebel announces that the cathode rays act like the radium rays, and may substitute the latter in radiotherapy. He further describes his mode of photo-cauterization and commends it as a valuable means of treatment of lupus, cancroid and similar affections. His experience has also been very gratifying with local applications of the ultraviolet rays in the urethra to induce hyperemia as a means of treating gonorrhea.

Münchener medicinische Wochenschrift.

103 (LI, No. 46, November 15.) Comparative Pathology of Animal and Plant Tissues.—Vergleichende Betrachtungen über die abnormalen Gewebe der Tiere und Pflanzen. E. Kuster.
104 *Beitrag zur Symptomatologie der Sympathikus-Lähmung (paralysis). A. Rosenfeld.
105 *Ueber die tonische Reaktion licht-starrer Pupillen (not reacting to light). L. Roemheld.
106 *Ueber postdiptherische Nephritis. A. Mayer.
107 Die neuropathische Prädisposition. J. Bernhart.
108 *Klimatische Einflüsse auf Asthmatiker. G. Avellis.
109 Embolie der Arteria mesenterica superior im Puerperium. H. Cramer.
110 [illegible] gleichzeitig bestehender Infrauter- [illegible]
111 [illegible] a.—Die Fruchtbarkeit des bayerischen Volkes im vorigen Jahrhundert. Grassl.
112 (No. 47.) *System der Strahlungstherapie (radiotherapy). G. Holzknecht.
113 Zur Kenntnis der Blutfermente (blood ferments). A. Jolles.
114 To Secure Expansion of Lung.—Wie unterstützen wir einfach und zweckmässig die Wiederausdehnung der Lunge nach der durch Rippen-Resektion vorgenommenen Entleerung eines Pleura-Empyems. C. Hofmann.
115 Influence of Carlsbad Waters on Bile Secretion.—Choledochus-Verschluss durch primäre Anlagen (Gallenschlamm)—Cholagoge Wirkung des Karlsbader Thermalwassers. F. Fink.
116 *Relations Between Tonsillitis and Articular Rheumatism.—Ueber die Beziehungen zwischen Mandelerkrankungen und dem akuten Gelenkrheumatismus. Gürich.
117 Sprained Ankle Cause of Death.—Fussgelenkdistorsion als Todesursache. W. Fürstenheim.
118 Zur Kasuistik der Misbildungen (deformities). L. Hecht.
119 Ueber die Erzeugung intensiver Röntgen-Strahlen für therapeutische Zwecke. J. Rosenthal (Munich).
120 Ueber die paraportale Resorption bei Neugeborenen während der ersten Lebenstage (in the new born). Ganghofner.
121 Gregarinen oder Plasma-Zellen. R. Hoffmann.
122 *Ueber Obliteratio uteri totalis. F. Frank. (Commenced in No. 46.)
123 Die Seebäderreise des "Meteor" (floating sanitarium). M. Fürst (Hamburg).

104. **Symptoms of Paralysis of the Sympathetic.**—Rosenfeld describes a case of cancer of the esophagus causing paralysis of the right sympathetic and left recurrent laryngeal nerves. Besides the usual symptoms he mentions a remarkable hyperemia of the opposite side of the face, and the anidrosis and reaction of the pupil to pain, observed on the affected side.

105. **Tonic Reaction of Pupils Not Reacting to Light.**—Roemheld's patient presented evidences of old phthisis and exophthalmic goiter, no syphilis. The pupils were unsymmetrically dilated, without any reaction to light. During accommodation, convergence and closing of the lids, they contracted with great rapidity and completeness, and persisted in this condition for a long time, resuming their former condition very gradually. There were no other indications of a spinal affection. This phenomenon has been observed to date in congenital lues, multiple sclerosis, tabes, diabetes, alcoholism, migraine and paralysis. Its significance for diagnosis and prognosis is still undetermined.

106. **Postdiphtheritic Nephritis.**—Mayer has witnessed a couple of cases of acute nephritis commencing the second week of diphtheria. He thinks that postdiphtheritic nephritis is more common than supposed, but generally escapes notice. The urine should be examined long into convalescence to detect albuminuria.

108. **Climatic Influences on Asthma.**—Avellis relates a few instances from his experience to show the contradictory action of change of climate in cases of asthma. In one instance a child had been permanently relieved of the asthma by a trip to a certain place in the country. There was no recurence of the asthma, but a year later the child was taken to this same place and at once the asthma returned and persisted until after the return home. In another case a change of air always brought on asthma; in a third, a place where the patient had always been free from asthma brought it on as soon as she arrived there. A fourth patient with very severe, almost constant, asthma, was permanently relieved by a two-hour journey to a hill country and the same place always proved "asthma immune" in her case. Another asthmatic lived in Heidelberg and suffered much from asthma, but was always relieved when he climbed to the top of the high hill there. Some do best in high valleys, others on the plains, some even in the London fogs. Sea air seems to have an unfavorable influence except for children, whom it frequently benefits. Mountain air sometimes helps children.

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Original Articles.

THE OCULAR SYMPTOMS OF LESIONS OF THE OPTIC CHIASM,

WITH THE REPORT OF THREE CASES OF BITEMPORAL HEMIANOPSIA.*

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In order to study the ocular symptoms of lesions of the optic chiasm, the following classification, although somewhat artificial, naturally suggests itself:

1. The anatomic relations and structure of the optic chiasm.
2. Anomalies of the visual field.
3. Ophthalmoscopic changes.
4. Anomalies of the external ocular muscles.
5. Alterations in the pupil reflexes, with special reference to the hemiopic pupillary inaction.
6. The lesions which produce alteration in the structure and function of the optic chiasm and give rise to the ocular symptoms from which their position is inferred.
7. Diseases of the pituitary body, with special reference to the ocular symptoms of acromegaly.
8. Simulation of chiasm disease by other affections, for example. hysteria, locomotor ataxia, brain tumors.
9. The effect of certain toxic agents in causing lesions of the optic chiasm.

ANATOMIC RELATIONS.

Beneath the floor of the third ventricle the optic chiasm rests in the optic groove of the sphenoid bone. Its important anatomic relations are ventrally the sphenoid bone, dorsally the third ventricle of the brain and posteriorly the hypophysis with its prolongation, the infundibulum. The circular venous sinus and the internal carotid arteries, with their anterior cerebral branches, are in close surgical relation to the chiasm.

Microscopic Structures.—As is well known, there has been considerable difference of opinion in regard to the disposition of the fibers in the optic chiasm, whether on the one hand there is total crossing of the fibers, as Michel and von Kölliker believe, or whether, according to the majority of authors, there is, as a rule, a partial decussation. The literature of this subject, often involved and contradictory, has been best analyzed in comparatively recent times by Llewellys Barker.[1] and we can not do better than quote in a somewhat condensed manner from his admirable review as follows:

> The long processes, or axones, of the ganglion cells pass into the nerve fiber layer of the retina, reaching the papilla or nervehead, and proceed to the optic nerve. Having reached the optic chiasm, a portion of the fibers of one optic nerve cross over and enter the optic tract of the opposite side, forming the crossed fasciculus, while a certain number of other fibers do not cross, but enter the optic tract of the same side, forming the noncrossed fasciculus. The noncrossed fasciculus arises chiefly from the temporal side of the retina, while the crossed fasciculus arises from the ganglion cells of the nasal side of the retina. The bundle of the macula lutea, or papillo-macular bundle, in general terms, is situated in the central part of the optic nerve and maintains its central position in the optic chiasm and in the optic tract, and is composed of crossing and direct fibers.

Now, although secondary degenerations observed in pathologic cases in higher animals and in human beings seem to prove a semi-decussation and not total crossing of the optic chiasm, and although von Gudden has shown that in the rabbit, where the decussation is almost total, there is a small non-crossed fasciculus and that total decussation is present only in such animals in which the visual fields of the two eyes are entirely separate, for example, in fish, amphibia and birds, von Michel asserts that even in man the decussation is complete or total. He bases his opinion on serial sections of the normal optic chiasm, on sections of the optic nerves, chiasm and tracts, in cases of degeneration in men and animals; and on certain physiologic considerations.

Apparently, however, his views are not tenable when taken into consideration with the great mass of evidence which has accumulated on the opposite side. Von Gudden, with careful consideration of the superior commissure of Meynert, the inferior commissure of Gudden, and the hemispheric bundle, has demonstrated by unobjectionable methods,that each of these,as well as the crossed fasciculus and the non-crossed fasciculus, can be individually isolated. He has shown that the well-known experiments of Nicati, by which the optic chiasm was cut in the middle through the mouths of cats, demonstrate that these cats could still see, which would be difficult or impossible to explain if the decussation was total, and in Siemerling's case of destruction of one optic tract with diminished sharpness of the opposite eye, the patient could still see with the temporal side of his retina. also an impossiblity if complete decussation had been present.

Finally, we come to the studies of Henschen, based on elaborately studied and collected clinical material. According to this observer, whose views are accepted by almost all modern writers on the subject, the following is the arrangement of the fibers in the chiasm: The macular fibers. both crossed and uncrossed. are axial in situation. the crossed bundles being central while the uncrossed bundles are found medial and lateral. The papillo-macular bundle, although mainly axial, almost reaches the periphery behind the center of the chiasm where the crossing fibers are exposed to injury by a circumscribed lesion in the median line. The fasciculus cruciatus from each optic nerve is found on the dorsal and ventral aspects; while the *fasciculus non-cruciatus* is found medial and lateral.* In addition, the chiasm at its posterior angle contains two sets of commissural fibers not concerned in vision—the superior commissure of Meynert and the inferior commissure of von Gudden.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] The Nervous System and Its Constituent Neuroses, 1899, p. 782.

While it is undoubtedly true that this represents the usual anatomic arrangement in the chiasm, individual differences of great variety are possible, and indeed, have been found, varying from the entire absence of the chiasm (the right optic nerve going to the right tract and the left nerve to the left tract), to perhaps total decussation in the chiasm. (Fig. 1.)

ANOMALIES OF THE VISUAL FIELD IN CHIASM DISEASE.

The literature of this subject is extensive, and although we have examined it with some thoroughness and carefully analyzed between forty and fifty of the most important papers, it does not seem profitable in a communication of this character to do more than present a condensed statement of the possibilities in visual field changes without detailed reference to individual cases.[1] Moreover, the entire subject has been dealt with in so masterly a manner by Wilbrand[2] that it would be impossible to avoid quoting him as freely as we have in the section which follows:[3]

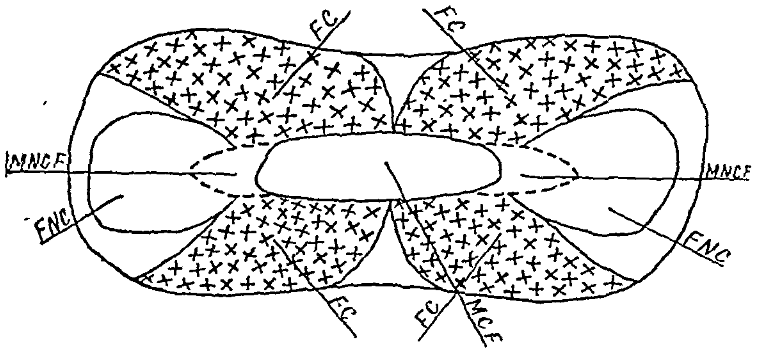

Fig. 1.—Henschen's arrangement of the fibers and chiasm according to Barker: f. c., crossed fasciculus; f. n. c., uncrossed fasciculus; m. n. c. f., macular non-crossing fibers; m. c. f., macular crossed fibers.

Complete Bitemporal Hemianopsia.—The most characteristic alteration of the visual field which may be regarded as pathognomic of chiasmal lesion is bitemporal hemianopsia, which, with its various modifications, is called by Griffith "the localizing form of hemianopsia." In a typical example there is blindness of the temporal halves of the visual field, with preservation of the normal function of the nasal halves, the dividing line making a sharp, vertical separation between the two portions of the field of vision. (Fig. 2). Instead of loss of the temporal field exactly to the fixation point, a portion of the field may be retained beyond this position, i. e., the line of separation does not lie in the vertical meridian.

This "over-shot field of vision," as it has been called, suggests the supply of the macula with a double set of nerves, one from each hemisphere, and has been explained by Schmidt-Rimpler by assuming anastomoses of the fibers in the optic nerves and chiasms. An interesting fact is the occasional long unchanged duration of bitemporal hemianopsia, as in Förster's[4] case, where with complete loss of the temporal fields those on the nasal side remained unaltered for ten years. In these typical cases, not only does the nasal field for form remain unchanged, but the color-limits of the same sides are also preserved and coincide with the vertical separation. The temporal field defect is not necessarily complete *ab initio;* it may begin with loss for colors only, to be followed later by loss of form sense and light sense, or the form sense and color sense may be lost, and the light sense retained entirely or in part.

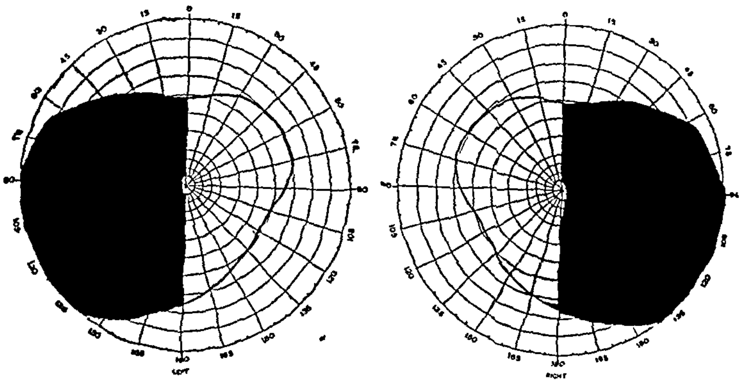

Fig. 2.—Typical bitemporal hemianopsia.

Again, the process may begin with paracentral or bitemporal hemianopic scotomas, which gradually broaden into bitemporal hemianopsia. Such cases, according to Wilbrand, have been reported by Beer, Förster, and Vossius.[5] In the last-named author's case, the condition began with bilateral temporal contraction of the visual fields and paracentral scotomas, and was followed by sharply limited bitemporal hemianopsia (Fig. 3).

Finally, the original condition of bitemporal hemianopsia may change and result in symmetrical paracentral hemianopic scotomas, as in Treitel's[6] case, which is quoted by Wilbrand. (Fig. 4).

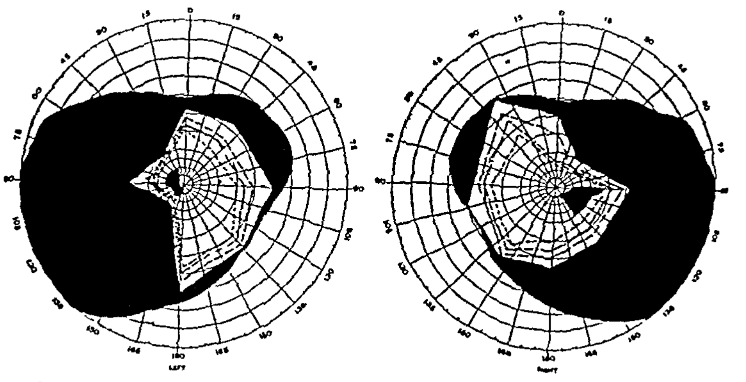

Fig. 3.—Bitemporal contraction of the visual fields and paracentral scotomas, followed later by bitemporal hemianopsia, after Vossius.

Significance: Typical bitemporal hemianopsia of permanent character is caused by a lesion which destroys the function, or, as it is called, the conductivity of both crossed fasciculi, leaving the non-crossed fasciculi unaffected. The best reported case of this character has been recorded by Weir Mitchell and Dercum,[7] in which an aneurism destroyed the center of the chiasm and obliterated the function of the crossed fasciculi. Paracentral or hemianopic scotomas indicate that the lesion is confined to that point on the dorsal surface of the chiasm where the papillo-macular fibers of the crossed fasciculus are interwoven.

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*A somewhat different arrangement of the chiasm fibers is given by Wilbrand and Saenger, Neurologie des Auges, vol. iii, p. 79.

[2] Perimetry and Its Clinical Value: A System of Diseases of the Eye, edited by Norris and Oliver, vol. ii, 1897, pp. 262-278. See also by the same author, *Die Hemianopischen Gesichtsfeld-Formen* und das optische Wahrnehmungszentrum: Wiesbaden, 1890. Since writing *this paper* Die Neurologie des Auges., vol. iii, 1904, by Wilbrand and Saenger has appeared. It has not been possible to incorporate the superb studies of chiasm diseases contained in its pages.

[3] See also Das Gesichtsfeld: Karl Baas, 1896, p. 216.

[4] Graefe und Saemisch, Handbuch der gesammten Augenheilkunde, vol. vii, p. 116.

[5] Graefe's Archiv f. Ophthalmologie, vol. xxx, 3, p. 172.

[6] Centralbl. f. prakt. Augenheilk., 1881, p. 320.

[7] Jour. Nervous and Mental Disease, vol. xiv, 1889, p. 44.

Bitemporal hemianopsia subject to fluctuations in the extent of the visual disturbances depends on the basal disease, especially syphilis, as has been pointed out by Oppenheim.[8] Improvements, even to complete recovery, may be followed by subsequent loss of vision. In such a case as Treitel's, previously quoted (See Fig. 4), Wilbrand suggests that a basilar gummatous meningitis may have injured the crossed fasciculus, while an interstitial neuritis may have caused atrophy at the intersection of the papillo-macular fibers.

In this connection we briefly refer to two cases of bitemporal hemianopsia with autopsy:

BASAL GUMMA AND BITEMPORAL HEMIANOPSIA.

CASE 1.—This case one of us (de Schweinitz[9]) has already reported briefly.

History.—The patient, a colored man, in the wards of Dr. H. C. Wood in the Philadelphia Hospital, was a syphilitic aged 55, who had epileptic attacks, Jacksonian in type, partial loss of hearing on one side, demonstrable loss of taste and smell, partial hemianesthesia and hemiplegia. Wernicke's pupil symptom could not be demonstrated. Both nerves were atrophic, and there was complete bilateral temporal hemianopsia,, with marked contraction of the preserved fields (Fig. 5).

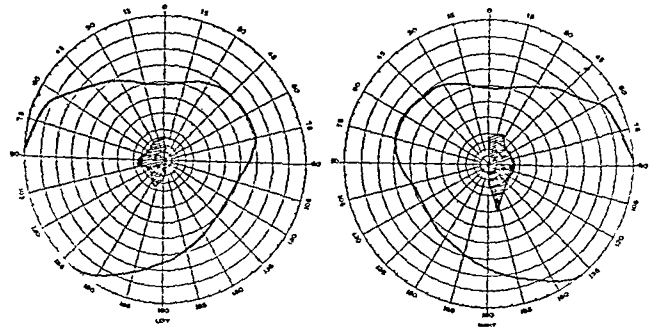

Fig. 4.—Symmetrical paracentral scotomas, after Treitel

Autopsy.—At the postmortem examination a band-like gumma was found which stretched across the anterior end of the pons and reached to the cribriform space. One end of the tumor was thicker and heavier than the other. The corpora quadrigemina and optic tract and chiasm were involved. Microscopic examination was not made.

TUMOR OF CHIASM; METASTASIS FROM MAMMARY CARCINOMA; BITEMPORAL HEMIANOPSIA.

CASE 2.—This patient, a woman between 50 and 60 years of age, was examined by one of us (de Schweinitz) in consultation with Drs. Tyson and Mills, who will report the case in detail. It is now referred to as a typical example of temporal hemianopsia in which a growth secondary to a carcinoma of the breast was situated at the base of the brain and involved in the chiasm. The visual fields (Fig. 6) indicate that the crossed fasciculi were divided. Dr. Spiller's examination of the specimens is as follows:

Autopsy.—The findings in the chiasm of Mrs. G. are as follows: The sella turcica was much enlarged and was about one and one-half inches in width from side to side, and about one inch from before backward. A large tumor mass filled the sella turcica, and the tumor was larger on the left side than on the right. The tumor extended around the optic chiasm and grew from behind it, and extended backwards almost as far as the anterior part of the pons. The right optic nerve was not imbedded in the tumor, but the tumor grew into the left orbit and surrounded the left optic nerve.

Microscopic Examination.—This showed that the tumor was a carcinoma, and that the optic chiasm was much degenerated by the invasion of and pressure from the tumor.

Temporal Hemianopsia of One Eye and Partial or Complete Blindness of the Opposite Eye.—Partial or complete blindness of one eye, with loss of vision in the temporal field of the opposite eye, has been reported a number of times. Thus there may be temporal hemianopsia of one eye, with entire loss of vision in the opposite eye, except in its upper or lower nasal quadrant; or the loss of vision in the opposite eye may be complete for color or form, but partially retained for light in one nasal quadrant; or, finally, the loss of vision in the opposite eye may be absolute. Cases of this character have been reported by Hirschberg, Lang and Schoen.

Significance: Under these circumstances the clinical picture is significant of a spreading lesion gradually involving the entire chiasm. Thus, if the upper or lower quadrant of the nasal field of the opposite eye is lost, in addition to its temporal blindness, it means that the disease has spread to the areas of the chiasm represented by the loss of visual function.

In this connection we record the following case already briefly reported by one of us (de Schweinitz[10]).

CASE 3.—A man, aged 34, clerk, American by birth, presented himself on Nov. 3, 1903.

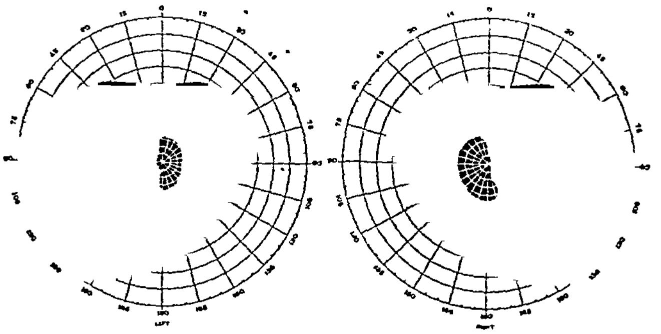

Fig. 5—Bitemporal hemianopsia and contraction of preserved visual fields from a patient under care of H. C. Wood. The lesion was basal gumma.

History.—The patient's father and mother are living, as also are four brothers and one sister, all of whom are in good health and have no organic defects of vision. Since an attack of dysentery at the age of 2 he has enjoyed good health, history of severe illness being absent. In 1883 he fell from a horse and was injured on the forehead over the left eye, but the skull was not fractured, so far as is known. The patient has led a healthful life, has no drug habits and denies venereal taint of any kind. His eye sight gave him no concern until seven years ago, when it began to fail, first on the left and later on the right side, the defect in vision being manifest by loss of the visual field on the temporal sides. There was never at any time pain, headache or signs of ocular inflammation.

General Examination.—The patient was undersized, but well nourished and presents all of the physical signs of infantilism of the myxedematous variety. With this exception, examinations made by us, as well as by other physicians, failed to find signs of organic disease. The urine was normal.

Examination of Eyes.—The eyelids were slightly puffy, and there was a moderate conjunctivitis of the left eye. V. of R. E. with + 0.75 sph. 6/7.5; amplitude of accommodation, 6 D. The optic nerve was ophthalmoscopically a narrow, vertical oval and atrophic, being bounded on its outside by a widened scleral ring; the veins were rather fuller than normal and were faintly streaked with white lines; the arteries were unchanged in size, both sets of vessels carrying normally tinted blood. Distinct evidences of neuritis were lacking and there were no gross changes in the retina or choroid. The visual field for form and colors exhibited the typical chart of temporal hemianopsia, the preserved form field (1 cm. square of white) being normal in extent, while the color fields (red and green) are markedly contracted, the dividing line exactly following the vertical meridian, the macular representation being in the preserved field (Fig. 7). The light field was preserved, except the upper and outer quadrant, which was entirely dark. The direct light reflex of the pupil was preserved, the consensual reflex absent, and the hemiopic pupil inaction (Wernicke's sign) could not be demonstrated, although the response was not so prompt when the light was directed on the blind side of the retina as when it fell on the opposite side.

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[8] Mills, Univ. of Penn. Med. Bulletin, May, 1904, p. 110.

[9] Jour. of Nervous and Mental Disease, vol. xiv, 1887; also Nervous Diseases and Their Diagnosis, by H. C. Wood, p. 271.

[10] Ophth. Record, vol. xiii, 1904.

V. of L. E. was *nil*, light perception being absolutely lacking. The optic disc ophthalmoscopically was small, round and entirely atrophic, but there was no marked decrease in size of the retinal vessels, and as on the other side, no distinct signs of a previous neuritis. The direct light reflex of the pupil was, of course, absent; the consensual reflex preserved;

Examination of Nose and Throat.—Examination of the rhino-pharynx and sinuses by Dr. Walter Freeman yielded negative results, who writes: "I find no evidences of sinus or nasal disease which could account for the eye trouble; I believe the sphenoids and ethmoids are normal."

Examination of the Head.—Examinations of the cranium by means of the *x*-rays were made by Dr. Henry Pancoast at the Hospital of the University of Pennsylvania, and the skiagraphs showed a shadow directly in the position which would be occupied by the chiasm, which shadow was not present in a skiagraph of the normal head, kindly loaned by Dr. Pancoast.

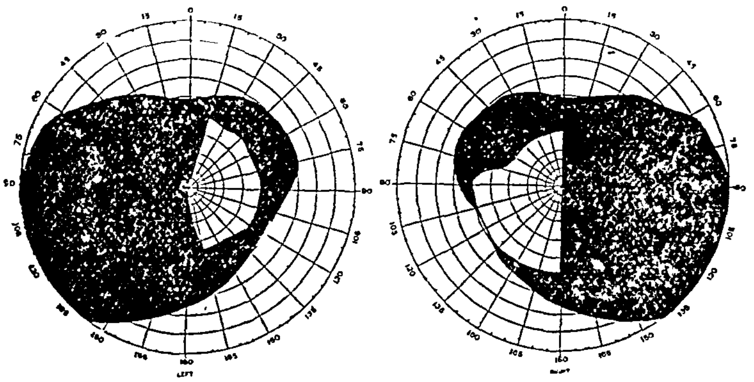

Fig. 6.—Bitemporal hemianopsia; tumor involved chiasm.

Remarks.—In the present instance we evidently had to deal with a case which was originally bitemporal hemianopsia, because the patient's statement accurately described the loss of the temporal side of each visual field as his first visual disabilities. Gradually the degeneration of the optic nerve continued, until on the left side the blindness became complete, and there is now temporal hemianopsia of the right eye for form and color and with a partial retention of the light sense, that is to say, it is preserved in the lower temporal quadrant and completely on the nasal side. In other words, we had here a very good example of a spreading lesion, so that only the nasal field of one eye remains perfect.

As to the probable lesion, three possibilities may be named, and in studying them we have had the advantage of Dr. William Spiller's examinations, who saw the case in consultation: 1, Myxedematous enlargement of the pituitary body; 2, as the patient once suffered from tapeworm, cysticercus of the chiasm; 3, aneurism or tumor at the chiasm.

What the exact lesion is is purely speculative, except there can be no doubt that the optic chiasm is involved. Sphenoid disease, which we first thought of, seems to be eliminated by Dr. Freeman's report. Dr. Pancoast's skiagram seems to show a shadow approximately in the region of the chiasm, a shadow, moreover, which is abnormal and which may indicate a growth, for example, an exostosis. Naturally, the injury which this patient received when he was thrown from a horse suggests the possibility that there may have been a fracture extending into the sphenoid bone. It is, however, difficult to accept this explanation in view of the fact that the injury occurred twenty years ago, while his visual defects were noticed only seven or eight years ago. Specific history is denied and there was no response to antisyphilitic treatment. He seems to have improved slightly in his general condition under the influence of thyroid extract. There has been no change, however, in the visual defects and also no progression.

Bitemporal Achromatopsia with Central Scotoma for Colors.—As already noted, the defect in the temporal fields may begin with loss for colors only, followed later by loss of form and light sense. In a case reported by Benson,[11] in addition to a bitemporal defect for colors, there was a scotoma for colors. The patient had acromegaly and was an excessive smoker. Sometimes, it would seem, there may be simply scotoma for color on one side, for example, in Doyne's case,[12] while on the other the scotoma is absolute.

Significance: In these hemiachromatoptic cases we may assume the interference in the conduction of the fibers involved has been sufficiently great only to lead to an inability to recognize colors, for example, red and green. Greater disturbance would lead to inability to recognize blue. As the power of conductivity grows less and less perfect, the patient gradually fails to distinguish black from white, and finally when it is lost the perception of light is lost.[13]

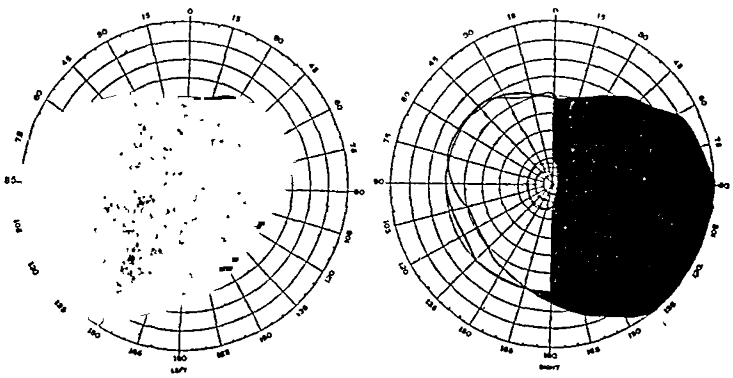

Fig. 7.—Temporal hemianopsia of right eye; complete blindness of left eye.

Chiasmal Central Amblyopia.—The development of bitemporal hemianopsia from symmetrical paracentral scotomas has been described. But it would seem that central scotomas, very difficult to distinguish from those seen in toxic amblyopia, are sometimes the initial signs of chiasm disease. According to Nettleship,[14] "the loss of the central field in the earlier stages is more abruptly defined than in tobacco amblyopia, and the symmetry is less precise, both in time and degree than in the latter disease." In one case in which a postmortem examination was obtained and the chiasm incorporated in a cyst, there was a central scotoma of oval shape, beginning just outside the fixation point, and extending twenty degress outward; the peripheral fields were intact.

Irregular Losses in the Visual Field.—A number of case records have been published describing irregular losses of portions of the visual fields. To some of these reference has already been made. Wilbrand has arranged them as follows: Temporal hemianopsia of one eye with loss of the upper outer quadrant of the visual field in the other (Schoen); temporal hemianopsia in one eye, in the other loss of the lower outer quadrant of the nasal visual field (Lang); loss only of the upper and outer quadrants of both fields; loss only of the lower and outer quadrants of both visual fields; loss of both visual fields, except their upper nasal quadrants which remained active; finally, loss of both visual fields, except their lower nasal quadrants which remained active is conceivable, although no such case has been reported. These irregular types of visual field defects are due to circumscribed lesions affecting small bundles of fibers in the chiasm. It is again to be noted that irregular losses of the visual fields with transient and varying types of bitemporal hemianopsia usually mean syphilitic meningitis, or gummatous involvement of the chiasm, in which recovery of vision often results from the administration of iodids or mercury.[15]

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[11] Brit. Med. Journ. October, 1895, p. 949.

[12] Trans. Ophth. Soc. U.K., vol. xv, 1895, p. 134.

[13] Consult Holden, Archives of Ophthalmology, vol. xxiv, 1895, p. 447.

[14] Ophth. Rev., vol. xv, 1896, p. 309.

Binasal and Unilateral Nasal Hemianopsia.—Cases of binasal hemianopsia occur with comparative infrequency. The literature has been analyzed by Veasey,[16] who makes reference to nineteen cases, but who also includes in them cases of unilateral nasal hemianopsia of the bilateral form of the disease as it is seen in spinal cord disease. The subject has also been discussed by S. M. Burnett,[17] who reports a good example of this affection.

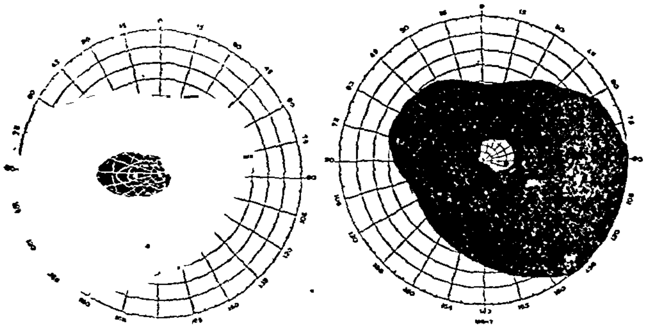

Fig. 8.—So-called binasal hemianopsia in hysteria, really simply an irregular contraction of the visual field. Patient under care of J. K. Mitchell and G. E. de Schweinitz.

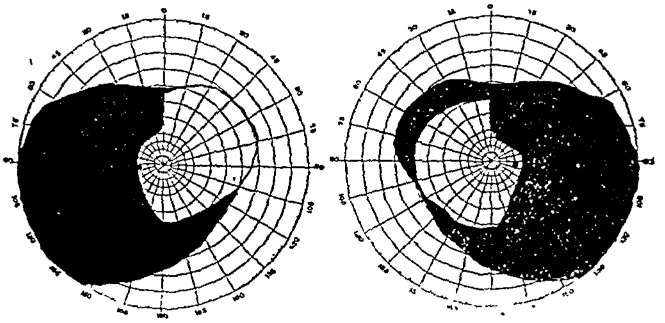

Fig. 9.—Bitemporal visual field defects in locomotor ataxia. Patient under care of G. E. de Schweinitz.

Significance: . The true chiasmal variety of the affection must be rare, if, indeed, it actually occurs. In Knapp's case it was ascribed to degeneration of the arteries of the corpus calosum, causing disease of the lateral angles of the chiasm. Burnett suggests as possible lesions in his case, in which the hemianopsia followed a fall on the forehead and remained unchanged for more than three years, a clot, or pathologic process set up by it, making pressure on the outer side of the right nerve trunk, and passing either above or below this trunk to the other side, without affecting intervening tissue, and there pressing on the temporal side of the left nerve. A double lesion affecting only the temporal supply-fibers in the tracts is also suggested as possible. Burnett himself recognizes, however, the difficulty surrounding the hypothesis he suggests. The irregularity of the remaining fields in most cases of binasal hemianopsia, as well as microscopic examinations which have been made, indicate that visual field phenomena are caused by optic nerve lesions. Thus, Gowers, commenting on Eales's case, suggests as an explanation bilateral inflammation of the trunks of the optic nerves in front of the chiasm, extending to this, and chiefly intense symmetrically at each side of the chiasm. Veasey accepts this explanation as most suited to his case.

A nasal hemianopsia on one side is produced by a lesion affecting the lateral portion of the chiasm involving the non-crossing fibers of one eye. Blindness of one eye and nasal hemianopsia of the other can not be explained by a single lesion. In Henschen's case the chiasm and optic tract were so involved that only the crossed fasciculus of one eye remained comparatively unaffected.

Bilateral Blindness of Chiasmal Origin.—Total loss of vision and of the pupillary reflexes in both eyes, followed in several weeks by bilateral optic nerve atrophy, is possible. Under such conditions we must assume that a lesion has divided the chiasm into an anterior and posterior portion and destroyed the conductivity of the lateral as well as the crossed fasciculi of both sides.

Superior and inferior hemianopsia have been described, and would indicate disease of the upper half of the chiasm, or, as in Uhthoff's case, symmetrical disease of the optic nerves.

OPHTHALMOSCOPIC CHANGES.

Following a destructive lesion affecting the optic chiasm, the ophthalmoscope usually reveals bilateral atrophy from descending degeneration. Partial atrophy of the optic disc results from circumscribed destruction of fasciculi of fibers on their passage through the chiasm. All grades of optic neuritis may be found with disease at the base of the brain involving the optic chiasm, varying from slight veiling of the edges to typical choked disc, but optic neuritis is not often found in chiasmal disease, even when produced by cerebral tumors. A reference to the report of the conditions of the eyegrounds in some fifty cases of disease of the chiasm show the following fundus changes, which can be conveniently grouped:

(*a*) Optic atrophy without preceding neuritis.

(*b*) Postneuritic atrophy.

(*c*) Atrophy of the temporal half of the nerve (partial atrophy).

(*d*) Slight optic neuritis as revealed by blurring of the disc edges.

(*e*) Well-marked optic neuritis and neuroretinitis with or without retinal hemorrhages.

(*f*) "Choked discs."

In one case mentioned by Hutchinson[18], the ophthalmoscope shows retinal arteries and veins diminished, retina white and hazy with many hemorrhages.

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[15] Just as this section was completed the third volume of Wilbrand and Saenger's "Die Neurologie des Auges," has come to hand, in which there is a most complete discussion of the visual field phenomena which would follow variously placed chiasm lesions.

[16] Ophth. Rec. February, 1897.

[17] Arch. of Ophth., vol. xxix, 1900, p. 1.

[18] Ophth. Review, 1889.

It is important to remember that although central vision in most cases of bitemporal hemianopsia is lowered (rarely normal acuity of sight has been preserved), and that the final stage of chiasmal disease is apt to be total blindness with atrophic discs, occasionally, even after blindness has appeared, as Wilbrand remarks, nearly normal power may return.

ANOMALIES OF THE EXTERNAL OCULAR MUSCLES.

Chiasmal diseases may be accompanied by paralysis of nearly all the motor and sensory nerves of both eyes. The progress of the lesion can at times be closely followed by the successive involvement of the cranial nerves running to the orbit. Anosmia indicates the extension of the lesion forward; bilateral hemianopsia followed by unilateral blindness and paralysis of the cranial nerves entering the orbit of that side shows the extension of the disease toward the right or left side of the chiasm. The third nerve is most frequently affected.

ALTERATIONS IN THE PUPIL REFLEXES WITH SPECIAL REFERENCE TO THE HEMIANOPIC PUPILLARY INACTION.

The production of complete blindness by chiasmal disease gives the usual loss of direct pupil reaction. Most reporters have failed to note the presence of the hemianopic inaction.

In some forty cases referred to by the authors, whose reports we have examined, this inaction was noted in but four cases. The usual note was "pupil dilated and sluggish," or "unresponsive to light, react to convergence."

The hemianopic pupillary inaction has been unquestionably present in some cases and no doubt would have been found if more carefully looked for in many more cases of disease of the optic chiasm. It is a symptom difficult to elicit and its existence has been denied by some authors. Even Bach, with his large experience and skill, has not observed it, although he does not deny that it may occur.

LESIONS WHICH MAY PRODUCE ALTERATIONS IN THE STRUCTURE AND FUNCTION OF THE OPTIC CHIASM.

From a consideration of the anatomic relations of the chiasm, we may divide these lesions as follows:

1. Those which affect the chiasm from below. These include trauma, for example, fractures of the sphenoid bone, exostoses, basilar, gummatous and tubercular meningitis, periostitis, arterial disease, aneurism, syphilitic arteritis and hemorrhage, and tumors of the sphenoid bone.
2. Lesions which encroach on the chiasm from above. These include tumors of the third ventricle and distention of the floor of the third ventricle in internal hydrocephalus.
3. Lesions which affect the posterior angle of the chiasm. These include tumors and hypertrophy of the pituitary body—notably in acromegaly. To this frequent cause of chiasmal disease a more extended reference is made in a succeeding paragraph.
4. The lesions of multiple sclerosis. Cases of this character have been reported by Snell, Taylor, Uhthoff, Spiller and other authors.
5. The lesions of tabes dorsalis. Cases of this character have been reported by Gowers, Uhthoff, Popow, Moxter and Benedict.

The chiasmal symptoms in these cases may be due to syphilitic basilar lesion, and not to interstitial inflammation of the chiasm, as Gowers states. This author also includes as a possible cause of chiasmal disease interstitial inflammation from inherited gout. Interstitial hemorrhage has been reported. Swanzy states that tumors of the cerebellum, by closure of the aqueduct of Sylvius, may produce internal hydrocephalus and cause pressure upon the chiasm.

The above summary comprises the results of careful study of the literature for reports of postmortem findings in somewhat more than one hundred published papers.

ACROMEGALY.

As is well known, acromegaly is a frequent cause of bitemporal hemianopsia, and this visual field defect, to use the language of Swanzy, is one of the commonest and earliest symptoms of this affection. It does not seem necessary to do more than make the briefest reference to the facts in the case. According to Hinsdale, the bitemporal hemianopsia in acromegaly is caused by an overgrowth or neoplasm of the hypophysis pressing on the chiasm, and by bony changes consequent on the abnormal growth of the lesser wing of the sphenoid bone. It may occur as a bilateral defect, as an unilateral defect, either right or left sided, and in two instances, at least, has appeared in the form of a nasal hemianopsia.

While it is true that the bitemporal variety of the visual field defect is the one most commonly observed, homonymous hemianopsia has also been noted by several observers. One of them (de Schweinitz) has examined a case of this character for Dr. Dulles of Philadelphia, and he has also seen and examined two other cases with typical bitemporal hemianopsia, one in the service of Dr. H. C. Wood at the University Hospital and the other in his own practice.

SIMULATION OF CHIASM DISEASE BY OTHER AFFECTIONS.

Hysterical Hemianopsia.—There is much difference of opinion whether hemianopsia ever occurs as an ocular stigma of hysteria. Parinaud maintains that there is one variety of visual insensibility which hysteria appears to be incapable of producing, and that is hemianopsia in the sense in which this term is used in organic cerebral lesions, and this opinion apparently is shared by Charcot, Gilles de la Tourette, Gowers, Freund, Binswanger and others. On the other hand, Rosenthal[19] states that in all cases of hysterical amblyopia which he has investigated temporal hemianopsia was present[20]. Lateral non-crossed hemianopsia in hysteria has been recorded by a number of observers, for example, Bonnefoy, Westphal, Galezowski, M. W. Zimmerman and Henry Lloyd.

So far as we are able to judge from a critical examination of the literature, hemianopsia as an enduring ocular symptom of hysteria does not exist. On the other hand, as a temporary phenomenon it has been observed a good many times by those who are competent to judge, and has appeared, as already noted, as a bitemporal defect, a homonymous lateral defect, and even, it would seem, as a binasal obscuration. It is possible, according to Pierre Janet[21], that there may always be a period of hemianopsia when the ordinary hysterical amaurosis is recovering.

A similar observation was made by Galezowski and Daguenet prior to his publication, who have also noted a transitory scotoma. Hirsh[22] describes hysterical blindness in a boy of thirteen. After return of sight, there was high grade contraction of the visual field, which gradually widened and showed a temporary bitemporal hemianopic character. Unilateral temporal hemianopsia has been described in hysteria by Landesberg[23] Wilfred Harris in his Cambridge Thesis[24] refers to two cases of hysterical binasal hemianopsia, one of temporary character reported by D. B. Lees, the other published by J. K. Mitchell and de Schweinitz. It is true they somewhat incautiously made use of the expression that the visual fields had the character of binasal hemianopsia, but they are quite sure they should be regarded simply as an unusual form of bilateral contraction. (Fig. 8.)

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[19] Wiener Med. Presse, Nr. 23, 1879, p. 736.

[20] In Gilles de la Tourette's book Rosenthal is quoted as having written a letter to Charcot in which he retracts this statement, saying that hysterics exhibit only amblyopia and concentric contraction of the visual field.

[21] La Presse Medicale, 1899, p. 243.

Bilateral Temporal Field Defects in Locomotor Ataxia.—As Gowers has pointed out, symptoms of a local lesion in the chiasm may occur in rare instances of tabetic atrophy. In one case which he has recorded the characteristic visual defect appeared suddenly. Popow[25] has examined in cases of ataxia the chiasm and found foci of degeneration. But the visual field changes in tabes dorsalis may simulate chiasm disease, when, in all probability, the chiasm itself is unaffected. It is probable that tabetic atrophy of the optic nerve may depend in part on disease and disappearance of the retinal ganglion cells. Should such disappearance occur on suitably situated symmetrical areas, symmetrical temporal field defects might follow. (Fig. 9.) It will be observed in a case which one of us (de Schweinitz) has observed, that although there is a form of bitemporal hemianopsia, the dividing line is irregularly placed and this in all probability would be a notably distinguishing, although not pathognomonic difference between ataxic and the chiasm-disease visual field.

Bilateral Temporal Field Defects in Brain Tumors Unconnected with the Chiasm.—As well recognized causes of bitemporal hemianopsia are basal tumors, and especially tumors of the pituitary body. But it should be remembered that a growth at a distance from the chiasm may occasion similar signs. As Swanzy, Gowers and others point out, a tumor of the cerebellum by closure of the aqueduct of Sylvius may produce internal hydrocephalus and thus exert pressure on the chiasm. So far as we are aware, bitemporal hemianopsia has never been observed as has cortical hemianopsia as a distant symptom. It is possible, however, that destruction of areas of retinal ganglion cells in cases of the choked discs of non-basilar cerebral tumor might give rise to bitemporal binasal visual field defects, but in such a case there would of necessity be marked irregularity in the line dividing the visual fields.

A brief reference to the lesions of the chiasm in multiple sclerosis has been made.

SYMPTOMS OF CHIASM DISEASE CAUSED BY CERTAIN TOXIC AGENTS.

We have already referred to central amblyopia and central scotoma as a sign of chiasm disease, and how such a scotoma may be difficult to distinguish from that produced by toxic amblyopia. One of us (de Schweinitz[26]) has published the results of microscopic examination of the optic nerves, chiasm and tracts from a typical case of so-called tobacco amblyopia with characteristic and intact visual fields. Degenerated patches are evident, occupying symmetrical positions in about the situation of the non-crossing macular fibers and leaving the remainder of the chiasmal structure intact.

Necessarily, they give no evidence of their existence except in the central scotomas. According to Westphal and Elschnig, optic neuritis with bitemporal hemianopsia has been observed as an ocular symptom of lead poisoning.

Homonymous lateral hemianopsia has been occasioned by illuminating gas toxemia, as reported by Purtscher and H. Friedenwald, but not the bitemporal variety of this form of the affection. Raffegean observed in a case of carbonic acid poisoning inferior hemianopsia dependent on a certain degree of interstitial neuritis of the optic nerves.

CONCLUDING REMARKS.

In the presence of typical bilateral hemianopsia, which, as we have before remarked, quoting the words of Griffith, may be regarded as the localizing form of hemianopsia, it is practically impossible to make a mistake, and the lesion must necessarily be, as already stated, one which destroys the conductivity of the crossed fasciculi, leaving the non-crossed fasciculi intact. When one comes to consider, however, the numerous irregularities in the visual field which may be present in chiasm disease, its existence can not always with safety be inferred from them without elaborately repeated examinations.

As Wilbrand has remarked, the chiasm with both tracts and the other intracranial portions of both optic nerves may be surrounded by diseased processes, particularly of a gummatous nature, and irregular defects of the field of vision result, from which a correct diagnosis would be difficult. Much depends on the method of examination and the degree of the destruction of the light sense. A careless examination might fail to develop a temporal field defect which a more careful one, conducted under diminished illumination, or using gray squares placed on white cardboard, would develop. On the other hand, an examination with a very bright light, for example, such as one uses in an electric perimeter, might reveal an intact visual field on the temporal side, good light sense being preserved, while it would be absent for form or colors.

Finally, the fact that a scotoma may be the beginning of a visual-field defect which will eventuate in a bitemporal hemianopsia and be significant of chiasm disease, should not be forgotten, and, moreover, a scotoma which to careless examination would seem to indicate simply papillo-macular bundle involvement and not involvement of the intermingling of the papillo-macular fibers in the chiasm.

The evident conclusion of the whole matter is that, in a large number of cases of optic nerve atrophy, the most elaborate examinations should be made by all known tests, under all degrees of illumination, and with all types of saturated colored squares, in order to eliminate or prove the presence of chiasm disease. We strongly suspect that there are a fair number of optic nerve atrophies on record, and, naturally, a much larger number in examination, which, if these precautions had been observed, would have yielded a larger percentage of chiasm disease than now seems indicated by the reports.

DISCUSSION.

Dr. Casey A. Wood, Chicago, stated that for a number of years he has suspected that those curious cases of aversion to binocular single vision are due to certain congenital defects of development; in other words, to lack of proper crossing of the optic fibers as they run forward from the visual centers. So far as he knows no proof of such an anatomic anomaly has been advanced to explain this failure to obtain binocular single vision. The fact that in certain cases of squint (usually alternating) two eyes with equally good vision, though straightened and treated by every known means, should still object to a completion of the act of binocular single sight is remarkable. It is exasperating that after early operation and training under apparently the most favorable conditions binocular single vision is unobtainable. Dr. Wood has not been able to accept the theory of lack of development of the fusion centers; he believes that we shall find the explanation in lack of proper crossing of the fibers at the chiasm.

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[22] Munch. med. Wochenschr., Nr. 13, 1903, p. 58.
[23] Jour. of Nervous and Mental Disease, vol. xiii, 1886, p. 85.
[24] Brain, 1897, p. 308.
[25] Jahresbericht f. Ophth., vol. xxiv, 1893, p. 512.
[26] Trans of the am. Ophth. Soc., vol viii.

Dr. John T. Carpenter, Philadelphia, said that perhaps Dr. Wood's suggestion could best be carried out in a general hospital, where such cases might be followed and autopsies properly made. He thought that the rarity of these cases is shown by the fact that in fourteen years he has not had a case of chiasm disease in his private practice.

Dr. Clarence A. Veasey, Philadelphia, exhibited a skiagraph of a recent case of chiasm disease. The patient is a robust man, perfectly healthy all his life, except for this ocular disease. He has been able most of the time to follow his vocation, that of a traveling salesman. Two years ago this chiasm disease showed itself, beginning in the temporal field of each eye as a slight fogginess. Later the form field was lost, the light sense being retained. The dividing line has varied from time to time. At one time it would pass directly through the fixation point; at another examination it would pass from 2½ to 15 degrees to the right or left of the fixation point; then again through the fixation point. There were no intraocular changes. This variability of the field can only be explained by a lesion, probably vascular, which produces change in the pressure between the examinations.

Dr. J. L. Borsch, Philadelphia, said that it is advisable, even when there is atrophy of the nerve, when destruction of nerve fiber has taken place and the chiasm is separated into an anterior and posterior portion, so to speak, to give a guarded prognosis, for a patient may present an atrophy of the optic nerve and one may be led to believe that permanent blindness has resulted, and still such a patient may recover his vision. Seven years ago Dr. Borsch saw a patient in the de Wecker clinic who had been brought in by a friend, which friend had wrested a revolver from him as he was about to take his life, as several oculists had told him that he was incurably blind; one of these gave him a certificate to that effect in order that he might enter the blind asylum. On examination it was found that he had complete atrophy of both nerves, with slight light perception on left side of field; on close questioning the fact was elicited that during the Franco-Prussian war he acquired lues, which had not been treated; he had had the ordinary diseases of childhood, but otherwise had never been ill, and in other respects was healthy. The man was placed on energetic specific treatment, and at the end of four months he had 1/6 vision, and in six months 2/3 vision. Dr. Borsch saw the patient last year while in Paris; he had normal vision in right eye and 2/3 in left.

Dr. G. A. Aschman, Wheeling, W. Va., mentioned a case seen six years ago of angiolithic sarcoma of the optic chiasm. The patient had a central scotoma which grew from week to week, but before that occurred it was thought to be a case of tobacco amblyopia, as he had been a heavy smoker. The interesting point was that this patient did not have any fundus changes for a long time. There were no signs of pressure; no choked disc. It was thought for a time that it might be a syphilitic trouble, but he did not improve at all on antisyphilitic treatment. It illustrates what has been said about confounding these cases with tobacco amblyopia.

Dr. Flavel B. Tiffany, Kansas City, Mo., said that he had a case a year ago of bitemporal hemianopsia in a man of 50 years of age, who came to him complaining of blindness on the temporal side of each eye. There was no history of syphilis, no trauma. Vision was 20/70 of the right eye and 20/200 of the left. The color sense was also impaired, especially for red. The treatment was pilocarpin ¼ grain twice a day, also vibratory massage once a day. The patient improved on this, his vision coming up to 20/40 and 20/70, respectively, in the two eyes. The etiology was very obscure. The trouble was probably due to a toxemia from grippe, which he had had two months before the onset of the hemianopsia. The lesion was evidently located in the chiasm involving the crossed fibers or those from the nasal side of each retinæ.

Dr. C. R. Holmes, Cincinnati, referred to a case in which the postmortem showed the exact condition afterward. A newspaper reporter came on account of inability to use his eyes. Careful examination revealed the fact that his glasses were correct, and with the ophthalmoscope no lesion was visible. He was ordered on a vacation, but returned worse than before. The condition was rather obscure. He, however, had a good deal of swelling in the nose and complained of inability to breathe. Dr. Holmes operated on one side, removing the hypertrophied tissue, and he was to come the following week for another operation. The day before the second operation was to have been performed Dr. Holmes was notified that he was not well enough to come, and the next day he learned that the patient was dead. He at once sent an assistant to try to secure a postmortem, which he succeeded in getting. It was found that there had been inflammation with necrosis of the sphenoid cavity, which had not been apparent at the examinations through the nose. When the brain was removed there was found a clot in the region of the sella turcica and extending over the chiasm. The bony roof had been entirely eroded, and a finger could be put into the sphenoid cavity.

Dr. John E. Weeks, New York City, asked why we do not more frequently find choked disc in these cases. A compilation has recently been made by one of the physicians associated with the New York Eye and Ear Infirmary of 102 cases,[1] and in only one or two of these cases was choked disc observed. The theory advanced by one writer is that the disease of the chiasm closes the subarachnoid space where the optic nerves leave the chiasm, and that the entrance of the subarachnoid fluid into the subvaginal space of the optic nerve is thus prevented.

Dr. G. E. de Schweinitz particularly called attention to the series of cases described in which there is simulation of chiasm disease by other affections, and particularly to the explanation which they have endeavored to give of so-called bitemporal hemianopsia of hysterical origin, which is never in their experience a permanent stigma of this condition, but which simply represents a form of the well-known amblyopia of hysteria.

THE MATHEMATICAL POINT OF REVERSAL IN SKIASCOPY.*

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Of all the objective methods for determining the refractive state of the eye, the shadow test is not only the most reliable, but, up to a certain point, the easiest to apply practically. In view of these facts it seems unaccountable that concerning the laws underlying the method, there should be such a lack of clear and positive proof offered, even by those who are supposed to deal with the subject in an authoritatively scientific manner. The ordinary text-books for students and general practitioners, without exception, I believe, pass over the theoretical part very superficially, giving attention wholly to the signification of shadow movements "with" and "against," mentioning the "point of reversal" only casually, with a matter of course assumption that everybody knows where it is.

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[1] N. Y. Eye and Ear Infirmary Reports. 1904.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

It is not my intention to charge these writers with ignorance of the laws on which the phenomena are based, but they certainly lay themselves open to criticism of lack of explicitness by any one seeking for a satisfactory scientific explanation of the fundamental principles involved. I am inclined to think that this lack of precision and definiteness in description may be due, in many cases, to the want of a clear idea of what it is that we really observe in making the examination by this method.

We are aware that Cuignet, who was the discoverer and first employer of the method in a systematic manner, had an entirely erroneous conception of the essential optical principles. He believed that the cornea was the chief agent in causing the phenomena, and since this was the thing to be observed he gave the name "keratoscopy" to his method.

It would seem also that some writers regard the image of the flame giving the illumination formed on the fundus of the observed eye as the object of direct observation, and have thus given some sort of justification for the use of that hybrid abomination "retinoscopy;" and I am sorry to see that Dr. Jackson makes one statement in his article on skiascopy in the Norris and Oliver's system which lends countenance to this. He[1] says: "The movement to be observed is the apparent movement of an area of light on the retina."

Any one reading the context, however, will discover that he does not mean that specifically at all, but something quite different, which only shows how nearly our best men sometimes come to making misleading statements in dealing with this subject.

Others, prominent among whom is Landolt, teach that the object of observation is the pupil, if we may accept the term "koroscopy" as indicative of his idea, though one is left in a confused state of mind as to whether he means the pupil of the observing or of the observed eye.

Now there can be no question that the subject of observation in this method is neither the cornea, the pupil nor the movement of an area of light over the retina. A study of the optices involved shows that it can be only one thing, and that is the image of the bright area on the fundus formed by the refracting system of the eye at the conjugate focus of the retina, or the far point of the observed eye. On this simple and fundamental mathematical fact hangs all the law and the prophets of the skiascopic method. In the higher degrees of myopia this lies between the eyes of the observer and the observed. In hyperopia, it lies behind the observed eye, while in emmetropia and low degrees of myopia it is behind the observer's eye, placed at the ordinary observing distance. The optical laws, explanatory of all the phenomena involved on this basis, I have exposed in a previous article[2] on this subject, and to this I refer those who care to examine into the details of the exposition.

In returning, at this time, to the "point of reversal," it is to attempt to clear away some obscurities that have surrounded its location and established its exact position in the quite complex optical system of which it forms a part.

In practice, it may suffice to say, in a general way, that the eye of the observer is at the point of reversal, but in any discussion of the question in an academic manner, as should be the case when we are dealing with an exact science like optics, it is necessary to establish that point with mathematical precision.

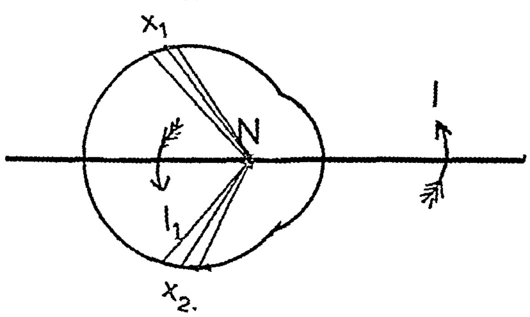
As in optics we deal entirely with points and lines, there must be a mathematical point in the compound optical system to which it belongs where the movement of this image in one direction passes over to that in another. Where is that point? The answer should be simple and clear.

Now we know in order to have a movement against the mirror rotation, an inverted image of the bright spot on the fundus of the observed eye must be formed in front of the nodal point of the observing eye, while in order that there be a movement with the mirror rotation, an exact image must be formed behind the nodal point of the observing eye; it necessarily follows, therefore, *that the point of reversal from the one to the other is the nodal point itself.*

This is shown in Fig. 1, where all movements of the image I, in front of the nodal point N, are against the mirror rotation, while all movements behind N, as at I^1, are with the mirror rotation. At N itself, which is the point of transition, or reversal from one movement to the other, there is no movement at all.

Furthermore, it must be apparent that when the image of the bright spot lies at N the rays X_1 and X_2 preceding from any one point of it divergently in all directions, as they do from every illuminated object, are sufficient to fill the whole of the interior of the eye, since they are not acted on by any refracting medium. It follows, then, that so long as there is a single point of the image remaining at N, under a rotation of the mirror in any direction, so long will there be a steady and full illumination of the field with no defined edge, shadowy or otherwise.

Fig. I.



The point of reversal at the nodal point, therefore, is characterized by no movement and a steady illumination under all mirror rotations. Moreover, these phenomena are possible only when the image of the bright spot lies exactly at the nodal point.

This is so inevitable that it seems strange that it has not found a categorical expression before this, but I have not been able to find it.

An explanation of the confusion and lack of clear expression on the subject may be found in one of several causes. The principal one, as I have mentioned previously, seems to me to be the want of a definite conception as to what is really to be observed and the position it occupies respecting the observing eye. Jackson, to whom we are so much indebted for his careful studies of the optics involved, fails to bring his usual clearness of demonstration to bear on this explanation, and the average student would not, I fear, find his ideas as to the exact point of reversal altogether free from confusion, for the reason that he leaves so much to be inferred.

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[1] Vol. II, p. 91.

[2] Am. Jour. of Ophth., May and June, 1903; and in the "Principles of Refraction," published by the Keystone, Philadelphia, Pa., 1904.

The same must be said of the account given by Souter, who has written lucidly and comprehendingly on optical questions in general.

Neither is Tscherning any more satisfactory in what he offers either as to the principles of the method or the point of reversal in particular. Accepting the theories of Parent and Leroy, he attaches great importance to the rôle of the pupil, and fails to mention the nodal point at all in this connection.

He says, in speaking of the point of reversal on page 210 of his "Physiological Optics": "At the critical moment, when the light changes its direction, the far point of the eye coincides with the pupil of the observer." Landolt in his last treatise on the methods of determining the refraction of the eye, now in course of publication in the new edition of the Gräfe-Saemisch System, *takes the positive stand that the point of reversal lies* in the pupil of the observer's eye. He says on page 248: "Aside from those conditions in which the illumination of the pupil with the mirror, be it plane or concave, moves in the same direction and those in which it moves in the opposite direction, there is yet another in which no movement of the eye is perceived at all, because the pupil in its entirety appears either illuminated or dark. This occurs when the far point, that is, the conjugate focus of the retina of the observed eye falls *in the pupil of the observer's eye.*"

We have shown above that the conditions of constant illumination and no movement to which he alludes has its mathematical explanation only in the coincidence of the image of the bright area on the fundus of the observed eye with the nodal point of the observer's eye. It is possible to conceive here that the pupil, as such, can play a necessary part in the production of either of these phenomena; yet Landolt, throughout the text of his treatise and by the illustrations and diagrams, insists that it is the pupillary edge of the iris which plays the principal rôle. In this he has evidently followed Wolff, the latest German authority on skiascopy, from whom he quotes largely.

That the diaphragm of the ophthalmoscopic mirror with its sight hole, can and does play a modifying part in the sequence of appearances, can not be gainsaid and in my article, above referred to, this has been given due attention and what is there said can be applied with equal pertinency to the iris and its pupillary opening. It was there demonstrated and shown by diagrams, how when the examination was made in the usual way, and the point of reversal was at the nodal point of the observing eye, the pupillary edge of the iris of the observed eye, had its conjugate focus and image on the retina of the observing eye. This, however, is a secondary incident and has no direct nor necessary connection with the main and essential feature of the position of the point of reversal. If there were no iris nor diaphragm of any kind, the mathematical principles being still the same, the point of reversal would yet lie at the nodal point.

The iris and its pupillary opening not being in any sense cardinal points in the complex optical system, it is difficult to understand how it came about that such high authorities came to select this location as the point of reversal, except as an approximate guess.

It is true that in the normal eye the nodal point is not far removed from the pupillary opening, but in aphakia, for example, it is some distance behind, being at the center of the corneal curvature. There seems no more reason then, from a strictly mathematical point of view, for selecting the pupil as the point of reversal than the apex of the cornea or any other point in the immediate vicinity.

It has to be conceded that in our crude method of examination we are not able to locate the point of reversal with the mathematical exactness here insisted on. There is always a limited space within which the movements are not clearly defined, so that the phenomenon does not offer an immediate passing over from one movement to the opposite.

This inaccuracy can usually be neglected as insignificant in low degrees of ametropia, and when the point of reversal is located at a considerable distance from the eye, that is, one meter or more. Moreover, it must be held in mind that for the perfect working out of the law it is necessary that all points of the image fall on the plane coincident with the nodal point. Should the image be not so formed, some points being in front of, and some behind the nodal point, there will be conflicting shadows within the illuminated area. These I have called "internal shadows."[1] They have their origin in irregularities in the refracting media and are usually most pronounced under a wide pupil, which exposes the irregular astigmia of the periphery of the refracting media, particularly that of the cornea. In some cases these are sufficient to materially vitiate the findings. *For the most accurate results this method demands media clear of any irregularity in refraction within the area of the pupillary opening.*

DISCUSSION.

DR. EDWARD JACKSON, Denver, stated that any one who has followed the demonstration can see that it is the nodal point of the eye and not the pupil at which reversal takes place. In the sense in which Dr. Burnett speaks, of course, one does not look at the light area on the retina of the observed eye, but at the image of that retina which is formed at the conjugate focus of the retina on which the light area is situated; in the same sense, with a pair of opera glasses or field glasses one does not look at the actor or at the landscape, but at an image formed by the glass. One looks at the object through the intervention of the image. A paper of this sort can perhaps be better appreciated when read than when listened to, but it is of great practical importance to frequently follow these mathematical problems through a clear demonstration in this way. Not that it is the best way to learn the facts, perhaps, but that it is a good way to get a working conception of the facts. These facts can be learned from a book, but to follow them through a demonstration of this kind gives a working knowledge that is of great value, particularly regarding the shadow test. Nothing else in ophthalmology has been done so much by rule of thumb.

DR. MARK D. STEVENSON, Akron, Ohio, said that the mathematical point of reversal is never found in actual practice, and can only be imagined in theory in an ideal or standard eye. The light reflected from the fundus of the patient's eye passes out and forms an area of light at the examiner's face. If this area is much larger than the examiner's pupil only a certain amount of the light enters his pupil and the portion of the patient's pupil through which these rays pass, alone, appears illuminated. The remainder of the patient's pupil appears slightly darker. If all the rays of light reflected from the patient's fundus would focus at or pass into the observer's pupil, he would receive rays of light through every part of the patient's pupil which would appear completely illuminated. This will place him at the practical point of reversal. If the examiner could dilate his pupil *ad libitum*, so as to make

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1. Trans. Amer. Oph. Soc., 1892.

it correspond to the area of light on his face, the patient's pupil would always appear fully illuminated. It is thus seen that if the observer's pupil receives all the rays of light, the observer is at the practical point of reversal. However, in this ideal condition under consideration, we must imagine a perfect anterior focal point or point of reversal coinciding with a pin-point pupil. The secondary rays of light will necessarily cross one another at this perfect focus, through this pin-point-sized pupil, thus making the nodal points coincide to the location of the pupil and point of reversal. Mathematically they do coincide, although in practice the pupil is the determining factor.

DR. SWAN M. BURNETT declared that it must be apparent that there can be only one mathematical point of reversal and that it is the nodal point of the examiner's eye.

SYPHILOMA OF THE CILIARY BODY.[*]

HERMAN KNAPP,
NEW YORK CITY.

My interest in cases reported by Dr. Charles J. Kipp,[1] Newark, N. J., and Dr. Edward Stieren,[2] Pittsburg, Pa., and in a recent case of my own, leads me to give a general description of this peculiar and uncommon condition.[3]

Dr. Kipp's first case was seen May 14, 1903. The right eye was normal, V. = 6/5. The left eye was greatly inflamed; conjunctiva intensely congested and slightly swollen; lids normal. Anterior chamber of normal dimensions, the temporal half filled with fibrinoid exudation. The nasal half of the iris visible, swollen and discolored. Pupil closed. No pain. The eye had been red and painful five days before Dr. Kipp saw the patient. Patient denied syphilis.

Diagnosis.—Irido-cyclitis plastica.

Treatment.—Warm fomentations, atropin instillations, sodium salicylate, leeches.

Five days later there was some bulging of the sclera along the upper and outer border of the cornea. This bulging increased, and two days later a dark-colored spot the size of a pinhead was noticed in the outer part of the horizontal meridian. Eye T + 1, intensely painful. Another black spot, smaller than the first, was noticed near the former; both grew larger. The bulging of the sclera increased, and some blood added itself to the yellowish mass in the anterior chamber. Dr. Kipp, believing that he had to deal with an intraocular growth, enucleated the eye. The wound healed in a few days. Shortly afterward Dr. Kipp learned that his patient had been treated energetically for syphilis.

Pathology.—Examination by Dr. Alt showed a mass of soft tissue, which had broken from inside through the sclerotic near the cornea, on the upper and outer side. The tissue was in direct communication with the enormously swollen ciliary body. The tumor started in the pars nonplicata, proliferated in the pars plicata and absorbed the iris. The optic nerve was atrophic. The tumor consisted altogether of small, round, polymorphonuclear cells, mostly mononuclear.

After-Treatment.—After the operation the patient received mercurial treatment and had good health.

Dr. Kipp's second case, a man aged 44, was brought by his physician. He was under treatment for syphilis. The left eye was normal, the right deeply injected, but not chemotic. Cornea hazy, Descemet's membrane dotted with whitish particles, the iris discolored and swollen, pupil contracted, secluded. Good perception of light. Mercurial treatment to be continued. He reported twice more, at intervals of a month. The eye went from bad to worse—hypopyon, iris covered with a thick, yellowish exudation, intense congestion of the entire globe with chemosis, cornea hazy, anterior chamber obliterated, pupil closed, faint perception of light, T + 2. In the sclera, a few millimeters from the outer margin of the cornea, several small black nodules projected 1 mm. above the sclera. Dr. Kipp yielded to the entreaties of the patient and enucleated the globe.

Examination of Tumor.—The tumor occupied the site of the ciliary body. The iris was drawn into the channel of the perforation. The ciliary body opposite the tumor was atrophied, but covered by tumor tissue, implicating the iris and filling the whole anterior chamber. The tumor broke not only outward, but also through the pigment epithelial layers of the pars plicata into the eyeball. It consisted of closely packed small mononuclear and polynuclear cells, and was in places quite vascular.

The patient recovered his health under prolonged treatment.

My own case is as follows:

A frail, unmarried woman of 32, consulted me Nov. 16, 1903. She is pale and has not been well for some time. Five days previous to her coming she found that her left eye was blurred. S. 20/70. In the center of the posterior surface of the cornea was a cluster of fine dots. Fundus blurred, but free from inflammatory foci. F. and T. normal. I made the diagnosis uveitis serosa, ordered rest in bed, atropin and salicylate of soda.

November 21. V.=20/40—. As the salicylate disagreed with her, I ordered calomel, refracta dosi. November 27. V. fallen to 5/200. Then she told me that she had syphilis and had been under treatment for it. I advised her to go to the hospital. She accepted at once and stayed there[4] seven and one-half weeks, where I saw her every day.

Treatment.—She was kept in bed as much as she could stand and was treated with mercurials, chiefly inunctions, and instillations of atropin and sublamin to keep the conjunctiva free from irritation. She developed an intense iridocyclitis. The ciliary region in the upper temporal part began to swell, at first in shape of a white, vascular nodule, which soon burst and showed the black uveal pigment. The swelling extended along the upper and outer neighborhood of the corneal margin. Its elevation was 3 to 4 mm., its length 6 to 8 mm. The cornea was hazy, the iris vascular and lack-luster, the pupil was about 3 mm. in diameter, its edge beset with filiform synechiæ. Tension increased, therefore instillation of 1 per cent. eserin, which soon reduced the hypertension. Yet it returned again when atropin was used, which was continued to reduce the iritis and prevent the closure of the pupil. Codein was given with the atropin. For a week her sight was more than perception of light, which as well as the projection, was always good. This kept me from proposing enucleation to her, though I asked myself whether that would not be the best treatment. Considering, however, that recovery of useful sight can never absolutely be denied, as long as perception of light or projection are preserved, I continued the treatment, and was gratified in seeing that gradually the symptoms abated. She never had great pain, for whenever it set in with plus tension, we gave her a myotic and morphin. As soon as tension was reduced we used homatropin or atropin, watching the effect.

December 12, about six weeks after her admission to the hospital, she counted fingers at 1 to 2 feet. The hypertension not infrequently alternated with hypotony, so that we could give atropin without hesitation. She was discharged Jan. 24, 1904. Pupil irregular, clearer; T. fundus dull; F. contracted temporally; V. fingers at 12 feet. The conjunctival congestion had almost disappeared, the perforation in the sclerotic was circumscribed, the elevation of the sclerotic diminished. She received strychnia tablets, gr. 1/50 for a week, then she was treated with potassium iodid and mercury mixed.

Result.—Her recovery progressed steadily. Atropin produced no glaucomatous attacks any more. The cornea and iris cleared themselves, the anterior chamber remained shallow for weeks, the pupil dilated, the filiform synechiæ did not entirely disappear. March 29, with + T. 21/50, fundus still hazy. April 5, no inflammation, interior normal, pupil somewhat oblong. April 23, 1904, interior clear, some synechiæ; V. with — 1C. 90° 20/20.*

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[*] Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] American Jour. Ophthal., vol. xxi, pp. 3-11. Two cases of syphiloma of the ciliary body; clinical histories, Dr. C. J. Kipp; microscopic examination, Dr. Adolf Alt.

[2] Gumma of the Ciliary Body, Penn. Med. Jour., Nov., 1901.

[3] I acknowledge suggestions from the excellent monograph of Prof. T. v. Ervetzky, Ueber das Syphilom des Ciliarkörpess, Berlin, 1904.

[4] N. Y. Ophthalmic and Aural Institute.

Thus the patient and the physician could mutually congratulate themselves on the reward of their perseverance.

Dr. Edward Stieren's case of gumma of the ciliary body was as follows:

A woman of 21, family history negative, was married at 16 years of age, gave birth to a living healthy child ten months after marriage. Six months later, November, 1899, symptoms of secondary and tertiary syphilis appeared (sore throat and abscess of tongue; a month later small brown blotches over the whole body, etc.). She nursed her child, contrary to advice, and infected it, but the child was soon cured by mixed treatment. The mother, receiving the same treatment, in appropriately larger doses, until March, 1900, when, against advice, she ceased medication. Dec. 24, 1900, she reappeared with a deep, spreading ulcer of the right side of the nose, involving the cartilaginous septum and the upper lip. She was put on large, rapidly increasing doses of potassium iodid, and in a week returned with the ocular involvement. The eye was extremely intolerant of light, with intense ciliary injection, muddy iris, cloudy aqueous, large leucocytic hypopyon, and a small inactive pupil.

Treatment.—Hot fomentations, instillation of atropin, large doses of potassium iodid, with ⅛ gr. of calomel every two hours, every day until Jan. 4, 1901, i. e., twelve days, when salivation called for the withdrawal of the mercury. On this date the eye presented the following condition: Hypopyon absorbed, pupil fully dilated, photophobia, ciliary injection and tenderness on pressure marked. Two days later a purplish diameter, gradually spreading in every direction, very painful to the touch. The pupil contracted opposite the swelling, giving it a kidney shape. Acute and constant pain, ciliary injection reaching its height, sight reduced to perception of light. Cornea very hazy in twenty-four hours, almost no fundus reflex.

January 10. Swelling increased, with oblique light; it was dimly seen to extend into the vitreous, pushing lens and iris forward. T. + slight. One hundred grains of potassium iodid were taken three times daily.

January 12. Patient more comfortable; photophobia and tumor unchanged; 160 grains of potassium iodid t. i. d., well tolerated.

January 16. Anterior chamber obliterated, showing reflex from vitreous chamber T. — 2; 180 grains potassium iodid t. i. d.

January 19. Total paralysis of rectus externus; 200 grains potassium iodid t. i. d.

January 29. Eye improved; pupil well dilated except at gumma; no synechiæ; the scleral aspect of the tumor slate-colored; fundus reflex bright, but no details of background; gumma notably smaller inside and out. V. 3/200; T. — 1; left external rectus regaining strength. From this date on steady improvement, reducing potassium iodid to 160 grains t. i. d.

April 6. The large doses of potassium iodid were no longer tolerated; now gr. x were given three times daily. Gumma had entirely disappeared, pigmentation in sclerotic marks its site. V. = 6/40.

May 1. Background clear, showing the remains of a neuroretinitis.

July 19, 1901. Perfect movement in all directions; a slight accommodative squint relieved by a cycloplegic. The round pupil slightly up and nasal. V. with correction, R. 6/8, L. 6/6.

Dr. Stieren draws the following conclusions: Syphilitic gummata of the ciliary body or of any other structure of the eye need not call for a hopeless prognosis, even though vision be reduced to perception of light and eyeball tension materially reduced. The resolution of gummous neoplasms is best brought about by large and rapidly increasing doses of the iodids; no limit in dosage need be thought of; the drug must be pushed until the symptoms yield, the gummy tumor melts away, exudates absorb, and inflammation subsides.

I indorse these views, except that in primary syphilis mercury would be my choice. As proof I cite my case in which the disease was identical with that of Dr. Stieren's in the pathologic conditions of the eye and in which the mercurial treatment brought about a perfect recovery.

GENERAL NOTES OF THE SYPHILOMA OF THE CILIARY BODY.

Occurrence.—The beginning of this affection is difficult to determine, on account of the locality which we can not see. It seems usually to originate in the plicate part of the ciliary body as a nodule which, under inflammatory symptoms, grows in every direction, mostly into and through the sclerotic, into the anterior chamber, and into the vitreous at the relative frequence of 16:17:1, according to Ewetzky's statistics of 67 cases. Mostly it encroaches on two or even three parts. Usually only a single tumor develops, rarely (13 per cent.) two. More than two in one eye have not been noticed.

Appearance.—In the sclera it first appears as a small nodule, which may increase to the size of a bean. In its growth it is surrounded by a ring-shaped elevation, steep toward the cornea, but gradual toward the sclerotic. It is yellowish gray, and black when it has perforated the sclerotic.

In the extreme cases phthisis bulbi is the end. All intermediate grades up to perfect restoration are represented.

The duration of the disease varies from two or three weeks to nine or twelve months.

CONCLUSIONS.

The first appearance of the syphiloma frequently is a small nodule in the iris-angle of the anterior chamber, from whence it takes its way outward through the sclerotic or into the anterior and vitreous chambers, with exudations in the former as hypopyon spurium.

Only 9 per cent of Ewetzky's series had been free from iritis. The pupil is mostly changed by posterior synechiæ of the iris and membranous exudations, preventing more or less the examination of the posterior parts of the eye. These are frequently more or less seriously affected; for instance with congestion of the retina, retinitis in white patches, and postneuritic atrophy of the optic disc.

The shape and mobility of the globe are damaged in many ways and degrees.

As to sex, there were 47 men against 215 women; 52 per cent. were between 20 and 30 years old; 28 per cent. ended in phthisis bulbi. In 30 per cent. the enucleation was made.

The acuteness of sight in Ewetzky's count was in 66 eyes:

Blindness		63.6 per cent.
Weak sight	S=0.1	13.6 per cent.
Moderate sight	S=0.1 S=0.3	12.6 per cent.
Good sight	S=0.7 S=1.0	10.6 per cent.

Dr. Stieren's and my cases *fortunately* increase the good results.

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*Note on correcting the proof, Dec. 5, 1904: The patient reported from time to time, continued to take small doses of KI, has had no relapse, and has perfectly recovered. The perforation of the sclerotic is still indicated by a small black patch. No changes in eye. Tn, Fn, V 20/20. H. K.

DISCUSSION.

DR. SWAN M. BURNETT, Washington, D. C., said that syphilis of the eye is not usually a particularly malignant affection in the negro, but when the ciliary body becomes involved he has never yet been able to stay the process sufficiently to restore vision to any serviceable degree. Some years ago he reported in *Knapp's Archives* some cases of this sort with a drawing made from a section of the ball. A peculiarity of the structure, as these revealed, is its close pathologic resemblance to tubercle. The giant cells are pronounced in their formation and structure. Another point in which it resembles tubercle is that it destroys the tissue in which it is embedded. Last winter Dr. Burnett had a case under observation which under vigorous treatment finally disappeared, but the whole of the ciliary body and iris were transformed into cicatricial tissue, and he is sure that it will soon be added to the collection of eyes lost by syphiloma of the ciliary body. One of the most marked symptoms is the intense pain which it causes. It is essentially a secondary manifestation. Dr. Burnett has a man under observation now presenting a perfectly typical appearance who is in the secondary stage of the disease. The protuberance from the ciliary region is 5 mm. It is the second case he has seen this year. The treatment should be as vigorous as possible. Formerly he gave deep muscular injections of bichlorid. This is painful and it is difficult to get the patient to submit. Where he can not do this he uses the inunction treatment. He does not have to enucleate all these eyes, but he has a larger collection of them than he takes pride in. Dr. Burnett said he would like to hear from his confrères in the regions where the negro abounds regarding the frequency of this disease and its malignancy.

DR. CHARLES J. KIPP, Newark, N. J., said that he has not seen a case in which it did not become necessary to enucleate in the end. Cases in which there is apparently syphiloma of the ciliary body can not be diagnosed with certainty unless the tumor perforates the sclera. Dr. Kipp agreed with Dr. Knapp that mercury is preferable to the iodid. A patient came to him after the tumor had appeared on the outside of the sclera and was rapidly spreading. The man denied syphilis, and it was thought to be some form of intraocular tumor. There was a grayish-yellow exudate in the anterior chamber, covering the iris. It was only after the tumor began to spread that it was found to be a malignant tumor. The man returned two months after enucleation of the eye and said that he was getting blind in the other eye. There was a mild ciliary injection and some spots on Descemet's membrane. He was at once put on inunctions of mercury, and in eight weeks this eye was all right. A similar process was undoubtedly starting in the other eye. Dr. Kipp now relies entirely on mercury in these cases.

DR. E. E. HOLT, Portland, Me., stated that, during the Spanish-American war, there were a good many of the soldiers in the Maine Eye and Ear Infirmary, and in one there was a marked case of this kind, the left eye being the one involved. The inflammatory process came through the ciliary region and burst. Dr. Holt did not remove the eye, and the right eye was not involved at this time. The inflammation subsided. Within a week or ten days, however, the right eye presented a tumor in the ciliary region which went on and burst, and that eye was lost. Dr. Holt asked Dr. Knapp if removal of the first eye would have prevented the occurrence of the inflammation in the other.

DR. SAMUEL L. LEDBETTER, Birmingham, Ala., said that nearly all negroes have syphilis and they are generally neglected, so that this is a common sequence in that race. They generally do not appear for treatment until the sclera has ruptured and so, of course, a large percentage of the eyes are lost. A certain number can be saved when they come for treatment early enough.

DR. ROBERT L. RANDOLPH, Baltimore, said that he had recently observed a case which, in its objective signs, was like that described by Dr. Burnett. The patient was a white man and had been under the care of an ophthalmologist who had expressed the opinion that the condition was sarcoma of the iris and that the eye would have to be enucleated at once. There were, however, several things about the condition which led Dr. Randolph to think it was a case of luetic infection, and he put him on large doses of iodid of potash and also gave mercurial inunctions. In six weeks the man had recovered. While it is unlikely that the eye will ever become a useful organ, it is at least a comely and a harmless one.

DR. HERMAN KNAPP said that in syphilis the nodule which first appears soon disappears and the part above swells and almost invariably bursts and there is a black excrescence, which is pigment from the ciliary body. That is not characteristic in sarcoma, where the nodule is more or less oblong and tongue-like and in which there are very few inflammatory symptoms. This, Dr. Knapp thinks, is sufficient to make the differential diagnosis between this condition and sarcoma of the iris or ciliary body. Dr. Knapp, in replying to a question, said that he does not believe that sympathetic action in the other eye ever acts in that way, so that the removal of the eye would probably make no difference.

TEMPORAL CLEFT OF THE NERVE HEAD.*

CHARLES H. BEARD.

CHICAGO.

Having used the ophthalmoscope rather industriously in large eye clinics and in private practice for the past twenty-one years, I have been strongly impressed by the oft-repeated occurrence of a certain aberrant picture of the optic nerve entrance. Roughly estimated, the total number of well-marked examples of such anomalous optic papillæ that I have encountered is about sixty—seen in the eyes of perhaps forty individuals—or about one in every 1,000 persons.

This I consider an extremely conservative estimate, as I believe the number to be greater.

The most distinctive feature of the appearance in question is an apparent wide parting in the optic nerve fibers at the temporal side, or a sort of triangular cleft, outward, of the cortical portion of the nerve head. Briefly described, the condition and accompanying phenomena manifest the following peculiarities: The gray pink color of the disc is confined to a crescent at the nasal side which, with its horns, occupies about two-thirds of the circumference of the scleral ring. This crescent, at its broadest part, would seem to be somewhat wider than the normal zone of nerve fibers. The scleral and choroidal rings, as far as they outline the crescent, are of nearly normal width and appearance—probably a trifle narrow. Outward. the scleral ring is broad and slanting and, in most instances, the choroidal ring becomes a small external conus. Indeed, the cleft would seem to be nearly related to external conus, and does not occur with conus up and down or annular. I have seen a few such clefts where no conus existed. The whole disc is slightly foreshortened, owing to the obliquity at which the nerve pierces the sclera and the trunks of the retinal vessels appear suddenly from behind the horns of the gray-pink crescent. The triangular segment of the disc bounded by the horns, and the external scleral ring is on a lower level and is glistening white, excepting next to the scleral ring, where a blue-green shadow marks the brink of the depression. The depth of the depression is not great—hardly so great as that of an ordinary physiologic excavation—and is seldom crossed by any save the tiniest of the retinal blood vessels. Now and then a vessel from the posterior ciliary system, or circle of Zinn, is seen to traverse this area—a truly unique sight in ophthalmology. All of which goes to prove that there are few nerve fibers between the observer and the sclera in this locality.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

There are never any openings of the lamina cribrosa visible in this area, not even in its nasal extremity or apex. The diameter of the scleral ring is not excessive—on the contrary, in a few instances, the papilla is abnormally small—it and the adjoining conus both taken together not appearing larger than an average disc. From the beginning, the picture here presented has suggested to me that of a flower of the morning-glory family, projecting into the fundus, from the nasal side viewed in a horizontal manner, and with its stem hidden behind the globe. So I have come to note it in my records as "morning-glory right," or "left," or "both," as the case may be. In at least one-half the cases the anomaly is bilateral. Twice I have seen it in the eyes of more than one child of the same parents.

Anomalies of the retina (*a*); of the choroid (*b*); of the refraction (*c*) are constantly associated with this cleft optic nerve.

(A) ANOMALIES OF THE RETINA.

Those referable to the retina include freakishness in the distribution and other characteristics of the vessels. Often a posterior ciliary artery comes in and plays the rôle of a good-sized retinal one. Frequently, one of the eight larger vessel trunks is wanting, and the lack is made good by one from the opposite side, taking on twice its usual size and sending over a branch to supply the need. To judge from the shape and dimensions of the carefully mapped out blind spot in these cases, there is also an unnatural arrangement and distribution of the macular bundles of nerve fibers in the retina. This spot is almost invariably elongated toward the center of vision and that, to a degree and with a configuration out of all keeping with the size and form of any conus that may be present. Without the data of an exact anatomic examination of such a retina, to guide in the matter, a logical explanation of this peculiarity of the blind spot would seem to lie in the wide separation of the macular fibers. In other words, to the actual absence of the triangular sector of macular fibers at the optic-nerve entrance, and which corresponds approximately, in shape and size, to the cleft under discussion.

ANOMALIES OF THE CHOROID.

Among the anomalies of the choroid that exist in this connection, the most conspicuous and constant is the appearance of general lack of development. This tunic is thin and barren, being specially poor in capillaries and pigment. Hence, the eyeground is streaked [illegible] nd the irregular distribution of the pig- [illegible] the characteristic peppered look com- [illegible] as "powder-grain fundus." In rare [illegible] es a plaque at the posterior pole, [illegible] wherein the choroid is either com- [illegible] has undergone pigment degenera- [illegible] oidal coloboma of the macula. [illegible] ted spots in the periphery are [illegible] nally there exists that condition [illegible] s the [illegible] undus tigré.

[illegible] F REFRACTION.

[illegible] under consideration, while [illegible] from the normal, is [illegible] acceptation of the term. Low grades of myopia and myopic astigmatism are the prevailing errors, though moderate degrees of hyperopia and hyperopic astigmatism are not uncommon among them. I have never seen this cleft associated with a high refractive error. Where the nerve defect is monolateral there is apt to be anisometropia or antimetropia. Temporal cleft of the nerve head with external clonus is not to be confounded with the obliquely set disc associated with posterior staphyloma, absorption of the choroid and high myopia. I do not remember ever to have seen the cleft in conjunction with these. In uncomplicated cases the defect or anomaly does not extend beyond the nerve head itself. The visual acuity, notwithstanding the best correcting lenses, is often below the standard, owing to the scant choroid. The fields of vision show varying degrees of diminished peripheral light sense, up to troublesome hemeralopia, but no other marked anomalies aside from those relative to the *punctum cœcum* already mentioned.

One of my cases was that of a 33-year-old man who came with the statement that since earliest childhood he had been unable to see at night, and that he had two brothers who had the same affliction. I rather expected to find the ophthalmic picture of retinitis pigmentosa. It proved to be a typical, double temporal cleft of the nerve head with the tiger fundus.

Another singular feature, that characterizes nearly every case, is torsion of all the fundus details toward the temple. Disc, conus, retinal vessels, fovea and macular coloboma of the choroid (when one exists) all show this temporal twist. This may have some reference to the fetal rotation of the globe, first noted by Kolliker,[1] and later by Vassius[2] and by Vasseaux.[3] This, of course, causes the macula and fovea to be placed abnormally low.

Cases complicated by great defects of the choroid are apt to have nystagmus and strabismus, particularly of the divergent variety. I have not seen any, however, that were accompanied by microphthalmos, harelip, cleft palate, nor other evidence of an imperfectly closed fetal fissure.

No inconsiderable amount has been written on the coloboma of the optic nerve and of the optic-nerve entrance. They mostly refer to incomplete closure of the ocular fissure, and are in conjunction with the downward coloboma of the choroid. The rest has to do, mainly, with various ectasias of the scleral portion of the nervehead, taking the forms of deep cavities or pits, single or multiple, within the area of the papilla, and situated at indiscriminate places. Another class, also quite prevalent in text-books and atlases, refers to a broad and deep excavation at the site of the optic-nerve entrance, whose dimensions, always considerably greater than that of the former disc, are often many times larger. The cases here in point are not those of true coloboma of the optic nerve, but their occurrence would seem to answer more to the explanation given by Ginsberg, of anomalous optic entrances which he had studied, both in the eyes of man and the lower animals. viz., a defect of the lamina cribrosa. A blocking up of the openings of the lamina cribrosa at the temporal side, or perhaps in some cases, an external, triangular area in this locality, where the sclera is actually imperforate. This would account for the crescentic arrangement of the optic nerve fibers, for the absence of any visible scleral perforations serving for the ingress of the nerve fiber bundles, and, in part, for the characteristic findings of the blind spot.

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[1] Embryologie de l'homme, p. 650.

[2] Arch. f. Ophth., vol. xxix, p. 119.

[3] Arch. d'Opht., vol. xiii, p. 523.

The nearest approaches to the description of the particular cleft of the nerve head treated of herein that I have found in the literature, are those of de Wecker, Stood, Nuël and Elschnig, though none of them conforms precisely to it. The nearest approximation as regards the papilla alone is the case of Nuël, but here there existed also high myopia and a plaque of bared sclera, outward, several times the size of the normal disc. Taking it all in all, Elschnig's case, which he examined anatomically as well as ophthalmoscopically, tallies most closely, though the ophthalmoscopic findings were considerably at variance with the cases here cited. Stood's second case is, to a degree, along this line, but here the temporal cleft was incomplete, as regarded the optic-nerve fibers, and a deep pit of ectasia occupied its floor and into which two retinal vessels dipped and disappeared, to emerge again on the other side.

Fuchs refers to a singular anomaly of the papilla, consisting in the presence of a small, temporal conus, and a white membrane covering the vessels over the greater part of the disc. He had seen three cases and cites another of Hirschberg.

I take it that the conditions presented by the fundi now brought to your notice have an important pathologic significance. This relates mainly to the accompanying imperfections of the choroid, as exemplified in its limited capillary system, its irregular pigmentation, diminution of the peripheral light sense, and general lack of blood supply. Its early recognition might redound to the great benefit of the possessor of such a fundus, for by one might hope for the possible prevention or amelioration of diseases arising through slow sclerosis of the choroidal vessels and other degenerative changes in the choroid, such as glaucoma simplex, true inflammatory glaucoma with high intraocular tension, and grave secondary degeneration of the retina. This would be accompanied, of course, by proper attention to the general physical condition, to the correction of errors of refraction, and, most important of all, to the regulation of the eye work in general.

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Pathologies of Wedle & Bock, Emile Berger, Greeff, Ginsberg.

Special articles by v. Hippel, A. Mooren, Nuël, Elschnig.

Atlases of Liebreich, Sichel, Pagenstecher, Genth, Frost, Haab.

DISCUSSION.

Dr. G. E. de Schweinitz, Philadelphia, said that when one examines the fundus of the eye with the aid of Dr. Beard's intelligent observations, one becomes familiar with appearances which, while they may have been seen before, were never properly appreciated or interpreted. Dr. de Schweinitz considers that the temporal cleft of the nervehead, which Dr. Beard has called the "morning glory," should be called "Beard's nervehead." In some recent investigations Dr. de Schweinitz has been struck with the frequency of various anomalies, in the nervehead, of the retinal circulation and of the fundus of the eye generally in the so-called degenerate types. This has recently been the subject of an important series of observations in France, and the conclusion has been reached that there is nothing in the eye itself, so far as functional examination reveals, indicative of the degenerate type. Dr. de Schweinitz does not believe, however, that the end of this matter is yet at hand and thinks that the subject demands more elaborate investigation. If Dr. Beard's investigations are correct, we should all endeavor to recognize the conditions which he has described, because they may give indications for treatment which will prevent later ocular calamities.

Dr. Edward J. Brown, Minneapolis, said that during the past year and a half he has carefully examined all refraction cases with reference to the ophthalmoscopic appearance of the disc. Of the first 160 cases 39 presented greater or less temporal concavity of the disc, not confined to the center, and of these 3 or 4 presented the appearance described by Dr. Beard in sufficient degree to attract attention, 2 of them being decidedly pronounced. Of the 39 cases only 4 had perfect fields, the others presenting peripheral defects ranging from 10 to 30 degrees. Dr. Brown's attention was especially called to these cases by the paper published by Professor Schoen of Leipzig in the *Ophthalmic Record* of October, 1902, presenting evidence that the so-called "physiologic excavation" of the optic disc is pathologic in character. Dr. Brown's observations suggest that concavity of the disc, not confined to the center, may at least indicate that such eyes belong to a class especially liable to be the subjects of glaucoma.

Dr. Charles H. Beard, in replying to a question, stated that he had never found this cleft in conjunction with any fissures or openings indicative of imperfect closure of fetal clefts. With colobomata involving the nervehead one often sees microphthalmos and other deformities. The nearest he has found with these are nystagmus and strabismus. Where anisometropia exists, as Dr. de Schweinitz suggests, it is the eye that has the cleft which has the higher degrees of refractive error, i. e., where the defect is monolateral. At a joint meeting of the Chicago Ophthalmological and Chicago Medical societies, Dr. Beard in April last brought out the point in connection with the "powder grain" fundus and thin attenuated choroid; these cases are particularly liable to have wide physiologic excavations. In all those cases there is diminished peripheral light sense, and they are truly pathologic cases. Dr. Beard has found that these cases average up intellectually as well as any he has ever seen.

DEVELOPMENT OF THE FACULTY OF BINOCULAR FUSION.*

EDWARD JACKSON, M.D.
DENVER.

The fusion faculty, which controls the ocular movements in the interest of binocular vision, is one of the most delicate and exact, yet one of the most constant and rigid co-ordinations that the human being acquires. That it is not commonly possessed at birth seems to be well established by the agreement of all careful observers. That it is normally developed in early childhood, and only during early childhood, is equally certain. Persistent intelligent efforts have failed to give any indication of its acquirement in adult life. I believe it is well established generally before the age of 2 years, and practically always before 6. The earlier age is that of normal development; the later is the limit of delayed or obstructed development, beyond which its appearance or development is impossible.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Although development of the fusion faculty occurs after birth, it is, I believe, determined essentially by congenital tendency. It is a race characteristic, and is not a result of the reaction of the individual to environment. It develops, as do the sex characteristics and organs, in obedience to inherited impulse; not like the power of reading or writing through conscious effort or training. There is not very much evidence on this point, yet what there is is fairly conclusive.

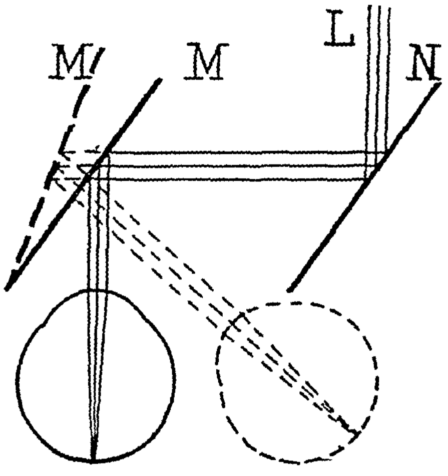
Take, for instance, the case reported by J. L. Minor to the American Ophthalmological Society in 1898, of a man operated on for congenital cataract at the age of 40. After one cataract had been removed the patient was still able to judge distance better with both eyes shut than he could by the sight of one eye. The other cataract was removed, and ten days later, when he was first allowed to use the two eyes together, tests with prisms and stereoscopic figures showed complete binocular vision. Two days after that when his eyes were again unbandaged he could judge distance accurately with both eyes open, but he usually missed when either was closed. His power of overcoming prisms was still comparatively feeble.

The very rapid acquirement of the power of binocular fusion from a few brief lessons with the amblyoscope reported by Worth and others, and which I also have witnessed, seems inexplicable except on the supposition that the fusion faculty has spontaneously become well-developed, although the patient, on account of some obstacle, has never learned to control or use it. Thus in the first of Worth's illustrative cases "fusion training" was given on five different days within a period of two weeks. On the fourth occasion it is noted: "The child as considerable amplitude of fusion." After the fifth ance, the eyes remain straight with glasses. Where the fusion sense has been established and the squint continues, Worth speaks of the repetition of fusion training once a month as being quite sufficient to keep up the fusion faculty until operation is permitted.

Evidently our most advanced treatment of squint today simply removes obstacles such as inequality of vision in the two eyes, or errors of refraction and the abnormal innervation they entail, or demonstrates to the child the existence of the fusion faculty that has already developed. But there are rare cases in which, without any apparent obstacle, no trace of binocular fusion seems to develop. In these cases without any serious error in refraction, with perfect vision in each eye, and no deviation of the visual axes, there still exists independence of function in the two eyes. They have no power of stereoscopic vision and no binocular diplopia can be provoked. There are also cases of alternating squint which are precisely similar to the [illegible]e, except that the movements of the two eyes are [illegible]inated to excessive convergence or divergence. [illegible] still larger class of cases a feeble faculty of binocular [illegible]sion or some rudiment of such a faculty is dis[illegible]t it is not capable of overcoming even slight [illegible] he bulk of uncured convergent, like the [illegible] ivergent squints of Worth, belong to this [illegible] o [illegible] ement of those cases must lie our [illegible] dded future success in the treat[illegible] w have instruments, the amblyo[illegible] d the stereoscope, with which the existence of the fusion faculty when it has already developed, but which he has heretofore left unused. These instruments, however, are not adapted to help in the continuous exercise of a fusion faculty which beside being unused, is really undeveloped.

In seeking an instrument that would aid us in the actual development of the fusion faculty, I have worked out one by which the patient can employ his binocular vision, such as he may possess, not only on a few specially prepared objects or slides, but on all objects that he looks at and continuously, even while there remains actual squint of any degree. The matter can be best presented by an explanation of the instrument.

In viewing the reflection of objects in a mirror there appears a lateral reversal of relative positions. If this reflection is reflected from another mirror the second reversal gives the objects their normal relative position. If the two mirrors are parallel, each object seen is seen after double reflection in its true direction. By inclining the surfaces of the mirrors to a certain angle each object seen through them appears displaced to double that angle. When, as in squint, the visual axis of the fixing eye is directed toward one point, that of the deviating eye is directed toward another. But by causing one or both eyes to look at such double reflections as are furnished by plane mirrors inclined to the proper angle it is easy to present the same object to the visual axis of both the squinting and the fixing eye. The accompanying diagram illustrates the effect of changing the direction of one of the mirrors.



The solid lines represent the mirrors M and N as parallel and the eye as receiving the ray L parallel to its original direction. The broken lines represent M inclined as for a convergent squint, the altered direction of the ray after its second reflection, and the way it would be received by the converging eye. By varying the angle of the mirror M, the reflected ray can be given any direction required for even the highest degree of squint.

The instrument can be used for the same purposes as the amblyoscope or an adjustable stereoscope, with slides prepared as for the stereoscope. But it can also be used in looking at any object near or distant, to produce any modification of direction required in the interest of binocular fusion. If there be present a rudiment of this faculty, even with a high degree of squint, the mirror can be set at such an angle as to constantly stimulate the exercise of fusion. By varying the inclination of the mirror M, the patient can be induced to increase or diminish his convergence, and thus exercise his power of maintaining fusion.

For an instrument not to be worn by the patient the before one eye only, the other being left free as in ordinary vision. The instrument swings either way on the upright that supports it so, that it can be used equally well for the right or the left eye. The arc can be graduated to show just how much convergence and divergence the position of the mirror represents. The reflection from two mirrors somewhat lessens the visibility of objects viewed by means of them; hence, the mirrors should ordinarily be placed before the non-deviating eye. To bring down the vision to an equality with that of the deviating eye, a series of smoked glasses of different shades are also furnished. These can be slipped in front of the opening, in the clip for this purpose.

With the width between the eyes, the degree of squint, and the difference in visual acuteness exactly known we can, in any given case, construct a binocular instrument very much smaller than this, which can be attached to a head band and worn continuously. With such an apparatus all the child's seeing for hours, or throughout the day, should be done under conditions that bring the two images of a given point on corresponding points of the two retinas.

I believe that with such an application of this principle of double reflection we will be able to bring about the development of fusion faculty in some cases in which such development would not otherwise occur. With the fusion faculty once fairly developed the complete cure of comitant squint becomes possible.

DISCUSSION.

Dr. Wendell Reber, Philadelphia, declared that there are three essentially different methods of regarding the eye: First, as an optical instrument contrived to form a perfect image, every focal point of which shall correspond with a radiant point in the object viewed; second, the retinal structure, and especially its bacillary layer; third, the still more wonderful correspondence of the two retinas, point for point, and of their representatives in space, point for point. Dr. Reber said that in the study of methods for the training of the fusion faculty, the question of the evolution of binocular vision is the primary consideration. It is a bewildering complex coordination, gradually acquired like walking or talking. The most rational method of studying this subject would seem to be in adults who, because of complete congenital cataract, have grown to maturity without seeing, and then had both eyes successfully operated on. Several such cases have been reported from time to time. One case recorded by Trombetta four or five years ago was that of a girl of 10 years, who had both eyes successfully operated on by Guaita, the eminent Italian ophthalmologist. Trombetta took charge of the young girl and in 45 lessons he succeeded not only in teaching the child to see without the sense of touch, but in obtaining satisfactory binocular vision. Before the twenty-fifth lesson, when the child's attention was directed to a nearly bright object, one eye would fix and the other wander up and out and oscillate. In the course of this lesson it was discovered that the child's vision had become stereoscopic. Dr. Reber said that in the case of the 40-year-old man quoted by Dr. Jackson, the question arises whether some sort of crude binocular vision did not develop and flourish before the man became entirely blind from the congenital cataract. If so, it would, of course, be a relatively easy matter for him to regain the faculty of stereoscopic vision when both retinas had been restored to their functions. This rousing of the faculty of attention and its close relation to the act of convergence, Dr. Reber considers, is closely bound up with the development of binocular vision. Le Conte shows that perception of the third dimension proceeds largely from an almost imperceptibly rapid exercise of the faculty of convergence. This fact, along with the psychologist's "mental faculty of attention," seems to form the basis for correct visual judgments. Whether the complex array of acts in binocular vision are or are not represented in the cerebral cortex by a special center is still *sub judice*. That a fusion faculty exists is beyond all doubt. Functional strabismus shows that the higher centers have abandoned the task of making the retinas correspond point for point, and must, therefore, be viewed as a species of atavism. The small globes and short interocular base line in little children, assisted by the excessive accommodation, will account for the turning in of the eyes rather than the turning out as would be expected. In constructing mechanical devices for the training of the fusion faculty one thing is axiomatic: that is, they should be simple and, if possible, so devised that they may be used several hours each day. The instrument here offered by Dr. Jackson is beautifully simple and if, as he states, it can be made small enough to be worn with a headband for several hours a day, it would seem to approach very closely to the ideal device for the development or restoration of stereoscopic vision. Priestley Smith's fusion tubes, one of which the child would take in each hand, represents the acme of simplicity. But as the child's visual axes are crossed, the tubes got in each other's way, and Mr. Worth happily thought of the reflecting tube and built his amblyoscope which has proved so efficient in selected cases. At no time should apparent parallelism of the visual axis be accepted as proof positive that the patient has been restored to stereoscopic vision. Some test for stereoscopic vision should invariably be resorted to as a final test, such as Hering's box, which is easily made and is quite as reliable as any.

Dr. Edward Jackson stated that the case cited by Dr. Reber is certainly nearer the experience of most cases of the sort that have been reported than is Minor's case. His case is a very exceptional one in the rapidity with which binocular vision was demonstrated after the second eye had been operated on. It was a remarkable patient; a patient who had remarkable powers of co-ordination for an absolutely blind person. The best illustration we have that binocular vision is developed sufficiently to go right into use after some obstacle is removed is the vision that children often get after the correction of a high error of refraction. Many of them will quickly or in a few days respond to the tests of full binocular vision. That is the basis for the assumption that binocular vision may develop to a high degree without having been exercised. The obstacle being removed binocular vision becomes possible. While the child undoubtedly acquires something in this short time, it does not acquire the complete nerve connections necessary for binocular vision. There is something there ready to be used as soon as the child acquires the knack.

DAIRY HYGIENE.

WITH SPECIAL REFERENCE TO THE LIMITATION OF BOVINE TUBERCULOSIS.*

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While perhaps it is impossible to be absolutely sure of the truth of any general statement, of which from its nature complete proof is unobtainable, we are justified, I think, in assuming that the statement that wild cattle are entirely free from tuberculosis is true. We are told that the native (Criollo) cattle of the Argentine are now and always have been free from tuberculosis. The appearance of the disease dates from the time when pure-blooded cattle were introduced into that country for breeding purposes. So it has been asserted that the native cattle of the Jura mountains and other places are, and always have been free from tuberculosis. So far as known, no animal running wild and eating the food that nature intended, has ever been tuberculous; and yet the disease is to-day the most common and most generally distributed of all diseases, affecting as it does, all living creatures, including man and every known species of warm-blooded animal, as well as fishes, amphibians, birds and reptiles.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Since the discovery of the tubercle bacillus in 1882, there has been a steady advance in knowledge of this disease, and of its, hitherto unsuspected, distribution throughout the animal kingdom.

There is, however, no proof that an animal living as nature intended, as has just been said, will ever become tuberculous;[1] while on the other hand, it seems to have been distinctly proved that under appropriate conditions, with a large enough dose of the infecting material, any living creature may be made tuberculous. Coincidentally with the knowledge of the great distribution of tuberculosis, has come the welcome knowledge that the disease is, to a great extent, curable in both man and animals.

It was a revelation to pathologists when Trudeau and others observed that if rabbits were inoculated with tuberculosis and then allowed to run at large, they recovered, while those kept in confinement after the inoculation died. So a small number of successful experiments have been reported undertaken to show the curability of the disease in dairy cattle, notably some at the Storrs experimental station some years ago. Also certain experiments have been made to demonstrate that the susceptibility of cattle to the infection of this disease varies with their environment.

Dr. Pearson of Philadelphia, fitted up two cow stables in the University Veterinary School. One stable had only 3,000 cubic feet of air space and few windows, and was in every way unhygienic. The other had 9,000 cubic feet of air space, plenty of light, and was kept scrupulously clean. Into each of these stables he put four healthy cows and two tuberculous ones, and kept them there for seven months, at the end of which time the four originally healthy cows in the unhygienic stable were affected with advanced tuberculosis, whereas of the four non-tuberculous cattle kept in the hygienic stable only two were tuberculous, and that to an inconsiderable extent.

Dr. de Schweinitz[2] gives a case as follows: "An animal originally tuberculous, kept at the station of the Bureau of Animal Industry, has received about 3,000 c.c. tuberculin in different injections extending over a long time. The animal is now well and fat and has entirely recovered from tuberculosis."

Dr. Salmon stated[3] in 1901 that 20 per cent. of Canadian pure-bred cattle offered for importation into this country were tuberculous, whereas of those brought into the United States for grazing and feeding, not over 0.2 of 1 per cent. are tuberculous, while the milch cattle of ordinary breeds offered for import, occupy an intermediate position. Bang long ago pointed out that the calves of tubercular cows did not themselves become tubercular if immediately separated from their dams and all other tuberculous cattle, and fed on sterilized milk. Theobald Smith, Bang and others have insisted on the desirability of preventing tuberculous infection in dairy herds by keeping the cattle in the open air as much as possible, and keeping the number of cattle in one herd as small as possible.

Conn[4] says: "The fact is that the more experience accumulates the more we learn that many of these incipient cases of tuberculosis are only temporary and that the animals in question, if kept in a favorable condition, will soon recover and may live many years of useful life."

C. S. Phelps, the agriculturist of the Storrs Experiment Station, gives the history of an experiment as follows: "Four cows, having been found to be tubercular, were placed in a high, light and airy stable, affording about 1,500 cubic feet of air space to each cow, and having a yard in which the cattle could exercise. In mild weather they occupied the yard most of the day. No especial treatment for the disease was attempted, but good care and feed were afforded at all times. In October, 1896, all four cows responded to the tuberculin test as they did in January, 1897. In April, 1897, two responded; in July, 1897, none of them responded, nor did any of them respond in December, 1898, a year and a half afterward. In the following February two of the cows were in good, and two in fair health, judging from their appearance. One of them, however, was still coughing."

While the number of observations on the curability of tuberculosis in cattle is quite limited, there seems to be no doubt that the disease is curable as well as preventable in cattle as well as in man.

Nocard has said[5] that animal tuberculosis is now rare in Paris because the animals are not kept longer than a year before fattening and slaughtering. Such a plan would probably eradicate the disease in any country, although all housed and confined animals are sufferers from this disease.

Dr. Louis Robinson[6] pointed out some years ago the greatly superior health of animals in a traveling menagerie over those in zoological gardens, who were confined in one spot, although the latter enjoy every care and attention that science can suggest.

The enormous distribution of tuberculosis in so many different species of animals, fishes and reptiles, would seem to establish the fact that it is essentially the same disease in all, and that the structural, morphologic and pathogenic differences noted in the tubercle bacilli of fishes, birds and mammals are gradually developed and due to differences in pabulum, temperature and environment, which the bacillus experiences in being passed through various hosts.

The ingenious theory advocated by Hueppe and others that the timothy hay bacillus, which has been proved to have slight pathogenicity, is the father of all the different varieties of tubercle bacilli, is not entirely lacking in verisimiltude.

Avian, human and bovine tubercle bacilli can certainly be so altered by cultivation and by passing through appropriate animals that they become indistinguishable. It is not my purpose to discuss this aspect of the subject further, nor is it necessary to burden this paper with figures to prove the enormous distribution of tuberculous disease in dairy cattle.

Experienced dairymen place the percentage of tuberculous cows in New Jersey, for instance, at thirty, and probably the number is about the same throughout the New England and middle states, although, until proper laws are passed enforcing regular stated inspections of all dairy cattle, and the rigid enforcement of the tuberculin test, no really accurate figures can be published. nor can proper steps be taken to eradicate the disease. We are at present only dallying with this very

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1. Bulletin 32, U. S. Dept. Agriculture, 1901.
2. Bulletin 13, U. S. Dept. Agriculture, Sept. 19. 1896, p. 17.
3. Bulletin 3, U. S. Dept. Agriculture, 1901, p. 21.
4. Report of the Storrs Agricultural Experiment Station, 1898.
5. Sixteenth Annual Report, Bureau of Animal Industry, 1899.
6. Therapeutic Gazette, 1896, p. 570.

serious question. To be sure, if no milk from tuberculous cattle was allowed to be sold, there would be now and for a long time to come a milk famine; as there seems to be little doubt that at least one-third of all the milk sold in our markets comes from tuberculous cattle.

It is a saying among dairymen that a tuberculous cow will give more milk than a non-tuberculous one. Whether this is true or not, as we have just seen, it is the pure-bred, high-grade milch cattle that are at present most affected with the disease, and there is not lacking good authority for the statement that superlactation is one of the predisposing causes, if not the principal one, of bovine tuberculosis.

From what has been said, it is evident that it is not alone necessary to destroy, or at least separate, all tuberculous cattle from healthy cattle, but that it is also necessary to take the best possible care of all dairy animals if the disease is to be eradicated and kept out of dairy herds in the future. The proper construction of cow stables and the care and food of the herd have been well understood for some years, but it is not so generally understood that cattle, like human beings, suffer from overcrowding and from confinement. Not over forty or fifty cows should live in one stable, and they should have their regular exercise, even in the coldest weather. The sun should shine into their stables all day long and the cubic air space should be much greater than that usually allowed. Alvord[7] advises 1,200 cubic feet per cow.

One writer,[8] after asserting that the tuberculosis of milch cattle is due chiefly to over-milking, urges that every one should be prohibited by law from milking a cow during the last three months of gestation. Nelson says that if animals are properly cared for they will not contract tuberculosis even when exposed to the disease. He refers more particularly to the diet in this connection.

Fortunately we have an efficient and easily applied means for the demonstration of the presence of tuberculosis in man and animals; namely the tuberculin test. Unfortunately, however, this test is not absolutely infallible in the most scientific hands, and as usually applied, it is subject to certain errors which should be more generally understood and guarded against. That cattle with advanced tuberculosis fail to re-act to the test is well known, but in most, if not all of these, careful physical examination will reveal the presence of the disease. It is in the early stages of the infection, when physical examination fails to reveal anything wrong with the cow, that the tuberculin test is our sole reliance and in these cases, errors, if they do occur, are more likely to be costly and far-reaching. It is asserted by some that a healthy cow may re-act to the tuberculin test. At all events she would unquestionably do so if by any chance the amount injected were too large or too concentrated. Nelson[9] only claims for the test 90 per cent. of efficiency after excluding all sources of error.

Nevertheless, it is a remarkably accurate and trustworthy method of diagnosing incipient tuberculosis, and the failures to re-act when tuberculosis is present, are astonishingly few, when we consider that there is nothing absolute in medicine and that in practically no case can every possible source of error be eliminated.

It is now customary to say that there must be a rise of 2 F. in the cow's temperature within from twelve to twenty-four hours after the injection of the tuberculin to indicate a positive reaction. The bovine temperature, however, is a variable matter, each particular cow being a law unto herself. The temperature during the rut runs higher than at other times. Young cattle as a rule have a higher temperature than older ones, and the temperature of the same animal (without discoverable cause) may vary within considerable limits (Nelson[10] says 2 degrees) on different days and at different hours of the day. While the average dairy cow's temperature may range between 101 and 103 F., it seems unjustifiable to say that a temperature of 103 or 103.5 F. is always due to the reaction from tuberculin. For this reason the temperature of cows should be taken more than the two or three times at two-hour intervals, as is now customary before the tuberculin test is applied. In fact, to render the test fairly accurate, the temperature of each cow should be taken at two-hour intervals for forty-eight hours before and for twenty-four hours after the injection of the tuberculin. As the temperature of milch cattle is variable, and is especially so among Jerseys and other high grade stock, we should expect that their temperature would bear some relation to that of the surrounding atmosphere, and sometimes at least, this would seem to be the case. At all events, Dr. North, of the Purity Milk Farms in Trenton, observed that after thirty-five cows were injected with a double dose of tuberculin in October last, they averaged 1 F reduction of temperature. At the time of the tuberculin injections the thermometer in the barn registered 80 F. The next day there had been a drop of 30 F. in the outside temperature, so that the thermometer in the barn registered 50 F., and every individual cow showed a reduction in temperature of from half a degree to a degree from the evening temperature of the day before, when the tuberculin test was administered. Some of the cattle showed very little variation, so that it may be suspected that they were tuberculous, and had it not been for the great fall in the external temperature, their bodily heat would have increased instead of remaining nearly stationary, after the injection of tuberculin.

A cattle dealer has asserted that he can make any cow pass the test for tuberculosis by putting her in the cold room of a refrigerating establishment and keeping her there a few hours after she has been injected with the tuberculin. The dealer asserted that this keeping of the temperature down could also be accomplished by throwing cold water on the animal with a hose. At all events, for a pronounced case of tuberculosis, or for an animal that has been a short time before subjected to the test, the 2 F. rise which has been agreed on by the veterinarians as the standard, is too high, since, as we have seen, some cattle, although strongly infected with the disease, will not re-act to that extent.

Thirty-eight cows which had passed the state veterinarian of New Jersey and had their papers, were one month afterward re-tested, nine of them, or nearly a quarter, reacted to the tuberculin test. The official tests have been found so often unreliable that many dairy men no longer trust them, but have their own veterinarian test every new cow before she is admitted to the herd. A friend of mine tested twelve cattle in one herd of nice looking, fat cattle presenting no evidence of disease, except that some of them coughed a little, and found that eleven of them were tuberculous. This same man was offered six Jersey cattle, all of which, when tested, showed tuberculosis. These same cows were subsequently sold to a wealthy man from New York for the especial nourishment of his children and invalid mother-in-law.

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[7] Year Book, U. S. Dept. Agriculture, 1894.

[8] N. Y. Medical Record, Nov. 6, 1897, p. 685.

[9] Bulletin 118, N. J. Agricultural Experiment Station, Nov. 30, 1896.

[10] Report Biological Dept. N. J. Agriculture College Experiment Station for 1894.

In another case, the one cow picked out of a herd for the exclusive nourishment of a particular infant, was tuberculous. A man went to a farm to buy four cows. The owner agreed to allow them to undergo the tuberculin test as a preliminary to the sale, provided that he should not be told if any of them were tuberculous. On applying the test, three reacted.

In a well-known dairy herd in New Jersey of 350 cows, a careful test is made of each animal every six months, and 15 per cent. of the cows have been repeatedly found to be tuberculous and have been taken out of the herd. Every precaution is observed in this excellent dairy to keep the cattle healthy and eliminate every possible source of infection, with one glaring inconsistency, as follows—the dry cows are boarded at the neighboring farms until they are ready to calve, when they are brought back to the dairy, and some of them must needs bring a fresh infection of tuberculosis with them.

It would probably be as economical to slaughter every cow when she goes dry, according to the method said to be in vogue in Paris, as to lose a third of a valuable herd every year from tuberculosis, and perpetuate the infection.

Nor does careful testing always avail to detect tuberculosis in cattle, nor to prevent its spread, as the following well authenticated case will show: A dairyman, desiring to move a herd of twenty cows from New Jersey into Pennsylvania, had them tested for tuberculosis in compliance with the law. Seven reacted and had to remain in New Jersey. Of the remaining thirteen, four were purchased and put with a healthy herd of 100 cows. In three months' time this herd was tested and only one cow reacted. This cow was one of the four that had been taken out of the infected herd. As the latter herd had been tested by a competent and honest veterinarian, this result shows one of the limitations of the tuberculin test, and it also shows that had the owner of the larger herd not been unusually vigilant he would presently have had, instead of one tuberculous cow, a badly infected herd.

As said before, our present laws are quite inadequate for the eradication of this widespread and rapidly growing infection. The different states demand that cattle brought across their borders shall pass the test, but they do nothing effective to quench the fire which is consuming the very vitals of the dairy industry.

A law commanding the firemen to direct all their attention to the environment of a burning building, but not to touch the building itself, unless they shall receive a request from the owner to do so, would hardly be considered sound legislation, nor calculated to deal effectively with the situation. Yet this is practically the nature of the present laws against bovine tuberculosis. An owner may have his herd tested by a more or less competent veterinarian if he chooses, and may receive about one-half the value for the cattle that are condemned to be slaughtered, or he may, if he elects, remain in blissful ignorance of the real state of health prevalent in his herd and may maintain a hot bed of infection and disseminate tubercle bacilli among the unsuspecting populace indefinitely.

We can no longer screen ourselves behind Koch's fallacious, albeit comforting, pronunciamento that bovine tuberculosis is not communicable to man. That it is communicable has been proved beyond all reasonable doubt. And furthermore, to quote Dr. Salmon,[11] the infection of human beings with bovine tuberculosis is one, if not the principal, cause of the long-continued virulence of human tuberculosis. He says "The human (tubercle) bacilli are generally much more saprophytic in their characters and far less virulent than those of most other mammalian sources, and it seems that the human organism has the power of attenuating these bacilli and gradually making them less and less harmful. But this influence for good must be continually counteracted by the infusion of extremely pathogenic germs from animal sources."

What then is our duty in the premises? It seems to me that there can be no doubt in any thinking mind, that a law should be passed making a semi-annual test of every dairy animal in the United States compulsory, and providing for the slaughter of every one showing any evidence of tuberculosis, and providing further that the owner shall be compensated to the full extent of the damage done him by slaughtering his animal or animals.

Such a movement would not cost a tithe of the sum which the government expects to spend on the Panama Canal, nor of that which it will cost a private corporation to tunnel the Hudson and East rivers in New York harbor, and yet it seems to me that from economic, scientific and philanthropic considerations, the stamping out of bovine tuberculosis would be a thousand-fold more beneficial to our country and to mankind the world over than the consummation of either of the great enterprises just spoken of.

Let us wake up from our lethargy and show that we are really advancing in civilization by adopting a very plain and obvious means of wresting from the "great white death" one of his most powerful and insidious weapons.

Let us also put out of business the bologna sausage man, who gives the dairyman $15 for the carcass of every diseased animal, which the latter can no longer milk at a profit, and makes the meat up into sausage.

Whether or not the remarkable freedom of the Hebrews from tuberculosis is due to eating Kosher meat, the reasonableness of the proposition that we should adopt similar precautions in choosing the meat for our tables is irrefutable in my opinion.

DISCUSSION.

Dr. H. M. Bracken, Minneapolis, approved of testing dairy herds for the purpose of securing non-tuberculous cattle. The percentage of milch cows affected with tuberculosis as given seems very high, and, for Minnesota, he is sure it is too high. He does not think that the passing of a law by Congress compelling an examination of all cows is practicable. Compensation for the cattle destroyed can be easily regulated through the state legislature. In Minnesota a law has been in force for several years allowing compensation. The farmers throughout the state are not compelled to have their cows tested, but many of them are doing so. At first the compensation was two-thirds of the appraised value. The farmers and the dairymen were both well satisfied with this, for, as a matter of fact, the appraisals were generally high, and two-thirds of the appraised value nearly or quite represented the real value of the animal. Later this law was changed, and the owner now receives three-fourths of the appraised valuation. A man may require the testing of cows as a condition of purchase, but the owner is allowed to keep those condemned cows and sell them later in the open market. This should not be permitted. A great deal of the testing of cattle for the purpose of excluding tubercular milk from the city supply is a farce. For example: The dairyman's herd is inspected, say, once a year; 10 cows out of his herd are condemned, and he buys 10 cows to take their places. The 10 cows bought come from the open market, and nobody knows until possibly the next year whether they are tubercular or not. Such methods do not exclude tubercular cattle from the herd. An effort was made in Minnesota to require dairymen to purchase only tested cattle. Of course this is easily carried out in dairies furnishing certified milk, but with the general dairymen it is a difficult matter. Dairymen said they were willing to purchase such animals if they could, and were willing to pay an additional sum for them, but there were no such animals on the market. On various occasions efforts were made to place tested cows on the market, but without success. Dr. Bracken said that while tuberculous milk is dangerous, the dangers may be exaggerated. More children die from the use of bad milk than from the use of tubercular milk, and too often in the effort to secure milk from a non-tuberculous herd of cows the general sanitary conditions surrounding the cow and the milk are entirely overlooked. There is room for the general improvement of the sanitary conditions surrounding the dairy, the cow and the dairyman.

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[11] Maryland Medical Journal, February, 1904, p. 92.

DR. GEORGE A. HARE, Tacoma Park, Wash., confessed to some disappointment in learning of the status of dairy inspection, and of the sanitary conditions surrounding the dairy supplies given to the people of the eastern states He believes that there are very few questions before the American people to-day fraught with the possibilities for good or evil to such an extent as is the question of dairy products and their proper inspection and believes also that we are looking entirely in the wrong direction for help. He said that the remedy is at our hands and just as soon as the medical profession wakes up just so soon will this question be solved in a practical manner. This question will be finally settled by the verdict of public opinion and public opinion on sanitary matters is molded almost entirely by the attitude of the medical profession. With a careless or indifferent family physician we can not expect very much care on the part of the recipient of the dairy products. If the physicians are asleep and apathetic on this vital question, the people will remain so. In the eastern states tubercular cattle are far more numerous than in the West, where the cattle have larger ranges. About 3 per cent. of the cattle tested in California are affected with tubercular disease. The sanitary affairs of every state at the present time are supervised by a board of health. The time has come in our country when these boards of health should be controlled by physicians Where they are controlled by physicians there is no good reason why the standard of dairy products may not be raised and maintained at any degree of efficiency the physicians choose. Dr. Hare said he had observed the conditions in a small city of 20,000, which a few years ago had no sanitary regulations. A board of health of five physicians was appointed, all of them untried men, but they had enthusiasm and a confident faith in the practical results of properly enforced sanitary laws. The result is that every dairy in that county is at the present time required to operate under a license. In the application for license it is specifically stated that the vendor of milk will subscribe to and observe every condition laid down by the board of health, and those conditions are printed in the application, with the statement that if he violates them wilfully his license will be forfeited If he violates them unconsciously he agrees to correct the error immediately on his attention being called to the matter. As a result of these methods that city has clean dairies —the dirty ones went out of business. They raised the price of milk a trifle, not nearly so much, however, as the gain in the prevention of the use of water. Every dairy is inspected every month. Every dairyman is under contract not to purchase milk outside of the product of his own cows, nor outside of the cows registered by the inspectors, and never to sell milk from any cow that has not been tested. When he adds a new cow to his herd, that cow must be tested, or his license is forfeited. The milk dispensed in the summer time must show below 50,000 bacteria to each c.c. In the winter season the bacteria must be below 30,000 to each c.c. The count is made twice each month, and with but one exception has been below the requirement and down even as low as 10,000 or 12,000 for a number of months. Those are practical results. Dr. Hare could see no reason why it should not be within the province of the medical societies of this country to so supervise the dairies of America as to exclude all diseased cattle, and to demand that all cows must be properly inspected. Public sentiment so strongly endorses the work of the board of health of that city that no dairyman in the county at the present time wishes to risk a lawsuit. Every dairyman's report is published in the paper. This has greatly stimulated the dairies to compete with one another in the production of a good product, because the people will go to the dairyman who has the best record. They find it to their own interest to watch one another. Until physicians realize that they can control the dairy business of this country they will be unable to control tubercular cattle.

DR. HURTY asked how long this process has been in existence and for how long a period the health officer is appointed.

DR. HARE, replying to these questions, said that this process has been in existence for three years, and that the health officer is appointed by the board and continues in office at the pleasure of the board. The board is appointed by the mayor for a period of four years, but the physicians took a hand in the framing of the charter, which specifically states that not more than two persons of the same political party can be members of the board of health.

DR. J. N. HURTY, Indianapolis, said that he became very much discouraged at one time in the work of controlling the milk supply on account of an experience at Indianapolis. They had an excellent health officer. He was doing good work. He had been in office for two years, that being the term of the mayor; then the politics of the city turned over, and out he went. Fortunately, another good man was put in, and he continued the work which the first man had inaugurated, producing very excellent results: then the politics of the city turned back again, and out he went. Dr. Hurty thinks that boards of health should not be composed of physicians entirely, and it would be well to have trained sanitarians on them. In the State Industrial University, situated at Lafayette, there is a department of hygiene. The man at the head of the department is not a physician; he is a graduate of the Boston School of Technology and has had training with the Massachusetts Board of Health. He has brought the department up to a high degree of efficiency, and, although not a physician, has been very successful in teaching sanitary science and this fact has led Dr. Hurty to believe that if a professional sanitarian, although not a physician, is appointed to the board, good results would be produced. The gentleman has been permitted to work through several administrations at Lafayette, no matter whether democratic or republican, because he is not a physician but a professional sanitarian. Dr. Hurty believes that there was a health officer at Mont Clare who was not a physician. He was very efficient and did good work there, and is now employed by the United States Geological Bureau in the hydrographic department. This promotion came on account of efficiency. In Indianapolis a plan was tried of managing the dairies that was extra-legislative. At that time there was no milk ordinance. The secretary of the board of health enlisted the aid of the newspapers and the board announced, although there was no law for it then, that they would give licenses to all dairymen whose dairies would pass inspection and the newspapers printed the rules as to what would be required in the inspection. The people were very much interested, and the dairymen all rushed in to get their licenses, because the people demanded it. The plan worked well. The state veterinarian tested the cattle. Photographs of clean dairies appeared in the newspapers from time to time, and the very best results were being secured; then out went the man. Politics interfered, and the work has to be done all over again at some future time.

Surgeon-General Sternberg, Washington, D. C., agreed with Dr. Hurty that a professional sanitarian might be a more suitable member of the health board than a physician who is not a sanitarian, but it seems to him that the professional sanitarians we need are men who have a medical education in the first instance, and added to that the necessary training to make them sanitarians. He thinks a great many physicians and health officers in this country appreciate the fact that a trained body of medical men who are specialists in sanitary work is needed. At the present time there is no regular system of training, and no place to go and pursue such a course of study. There is some prospect in Washington of being able to present such a course to those young medical men who desire to be sanitarians; the course will last for two years and lead up to the degree of Doctor of Public Health. The program has been made out by the president and trustees of Columbian University, which is soon to be called the George Washington University. The faculty has been selected. Dr. Sternberg is to be the dean, and among other members of the faculty are Dr. Wylie of the Agricultural Department, Dr. Salmon, and Dr. Stiles, who is an expert in everything relating to animal parasites. Dr. Wyman is to give lectures on quarantine administration, and Dr. Woodward on municipal sanitation. Dr. Sternberg is to have the general subject of hygiene. One or two distinguished lawyers and one justice of the supreme court, who is connected with the Columbian Law School, will give instruction with reference to sanitary laws, and the limitations placed by the constitution on legislation. They expect to have a competent sanitary engineer. The trustees have approved the plan, and there is only one thing at the present time that prevents them announcing that they are ready to receive students, and that is the lack of money. The trustees have decided that such a department shall be established as soon as $250,000 can be secured as an endowment or a guarantee fund of $50,000 to carry on the work of the department for a period of five years. If any wealthy gentleman will come forward with the guarantee fund they will be prepared to start the Department of Public Health. Dr. Sternberg believes if it could be fairly started that in the course of a few years they could begin to turn out thoroughly trained sanitarians. They will admit to the course non-graduates in medicine in order that they may take advantage of the instruction, but they can not receive a degree. The time will come when public sentiment in this country will demand that there shall be on every board of health at least one trained sanitary expert to whom all questions can be referred, who will conduct the laboratory work, etc.

Dr. G. T. Swarts, Providence, R. I., suggested that the trustees interview brothers Rockefeller and Carnegie.

Dr. Seneca Egbert, Philadelphia, believes the time will come when just such a school as this will be demanded; and when it begins to turn out its graduates we will then have sanitary districts, each with its proper sanitary officer. This plan is now in vogue in England. The United Kingdom is subdivided into sanitary districts, and in each of the sanitary districts there must be a sanitary officer, who is usually a graduate of just such a school and with such a degree as Dr. Sternberg has described. Dr. Egbert said if we can make the dairymen understand that by improving the conditions of their dairies and making them more sanitary and more nearly normal they are going to help themselves economically, we will reflexly help ourselves and our people, because as the dairy improves so will the quality of the milk improve. We must impress on the dairyman the necessity of putting his cattle in the best hygienic condition possible. Dr. Egbert believes that much of our tubercular infection comes from the milk and food we consume. He believes that the usual way of infection is through the alimentary tract into the lacteals, thence up through the thoracic duct to where it enters the subclavian vein. The chyle is poured directly into the subclavian vein just before the blood goes into the vena cava and heart, and from there right into the lungs. The material that goes into the body by way of the thoracic duct must go directly to the lungs, and the first place where it meets any marked obstruction to its progress is in the capillaries of the lungs.' Everywhere else it has a comparatively large lumen to pass through.

Dr. H. M. Bracken, Minneapolis, said that he does not think the Jews are any more careful in excluding tuberculous meat than are the gentiles. He knows of instances where tubercular cattle were killed under inspection, and the Jewish butchers were ready to take meat of a lower grade than the regular butchers. So far as he can judge, their inspection of meat does not amount to much when it comes to the question of tuberculosis.

Dr. Gardiner Swarts, Providence, R. I., said that there has been a good deal of dispute of late whether animals can infect the human being with tuberculosis, although the trend of opinion is confirmatory.

Dr. R. C. Newton said that, so far as he could ascertain on the eastern seaboard, the percentage of infected cattle was 30 per cent. Whether this is so or not over the entire country, we have no accurate knowledge. Buyers of fancy cattle and men who are trying to get high-class herds have had such an experience that they are beginning to think the disease almost universal. Thirty per cent. among eastern cattle is, perhaps, a low average. New Jersey has just passed a good law, which requires that every health inspector shall be examined as to his fitness and be licensed. The present inspector in Montclair is a graduate of the Massachusetts Institute of Technology. Those men are educated along the lines of chemistry and bacteriology better than the average physician. An epidemic of typhoid fever which occurred in Montclair in 1894 resulted in giving the health board more power than perhaps any other health board in the state. They have regularly employed an expert inspector since then. He has an analysis made of the milk delivered by every dealer every month, and that analysis is posted on the wall in the office of the board of health and any one can go in there and find out whether he is getting milk with 30,000, 40,000 or more bacteria to the c.c. or not. The more careful dairymen are getting all the business. Public opinion must be elevated considerably above its present status in order that the health boards may have proper authority to issue licenses to all dairies and to revoke the license of any dairy not properly administered. It is a matter of common report that the Jew is remarkably exempt from tuberculosis, and many observers have asserted that the careful inspection of their meat is at least one cause of this. It has been stated on good authority that out of 10,000 Jews in New York City one will find only 79 cases of tuberculosis, while among 10,000 Irish in the same place one will find 660; among the Swedes, 500, and among the Americans over 200. If we knew the reason for this we would be able to do something definite towards solving the great problem of the predisposing cause or causes of human tuberculosis. Dr. Bracken thinks hygienic laws and general habits have a great deal to do with it, but he does not think the meat has anything to do with it.

IS PNEUMONIA INCREASING?*

JOHN S. FULTON, M.D.
BALTIMORE.

The generally accepted view that the pneumonia mortality has risen rapidly in late years rests on no other evidence than the apparent mortality rates and ratios. If the rates and ratios are in general delusive, and if with respect to pneumonia they are shown to be fallacious, it does not follow that we must diminish our respect for pneumonia as a cause of death, but that we must more accurately determine its important relations.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the *Fifty-fifth Annual Session*, June, 1904.

I shall use the ratios almost exclusively in this study, because the disturbing factors of mortality ratios are more easily ascertained than those of the death rates, and the ratios are less influenced by the vagaries and inconsistencies of registration.

The apparent rise of pneumonia dates from the beginning of mortality registration in this country, and has over and over again been the subject of remark. In 1889 the registration report of Massachusetts comments on the apparent rise of pneumonia mortality above the age of 60, but no remark is made on the statement that the ages below 15 had suffered 36.12 per cent of the pneumonia mortality during the previous 20 years. Its apparent rise since 1890 has, however, brought pneumonia prominently into view, and this period (since 1890) has been most discussed. In a study of the mortality reports of the United States Census for 1890 and 1900 Klebs pointed out the interesting fact that the pneumonia mortality between the ages of 15 and 60 diminished from 1890 to 1900, while the periods of childhood and old age carried an increased burden of mortality. It also appears from the census statistics that the whole burden of the alleged increase fell on cities. Taking the study back to 1880 one finds the same distinctions, but I believe it has not before been remarked that the distinctions of age and of urban mortality were more marked in 1880 than in 1890. In 1890 37.7 per cent. of the pneumonia mortality of cities fell under the age of 15; in 1900, 45.5 per cent. fell on the same period of life; but in 1880 the children bore 48 per cent. of the pneumonia mortality. If these figures contained the whole truth of the matter we should believe that pneumonia under 15 had decreased in cities since 1880. But it happened that between 1880 and 1900 the age distribution of the population in American cities altered very materially.

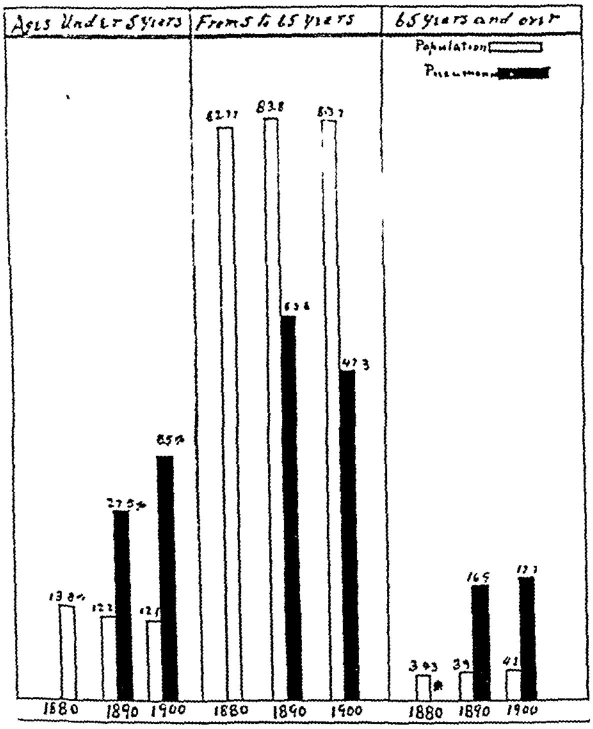

Chart 1.—United States census figures for 1880, 1890 and 1900. Population percentage in 3 age periods. Pneumonia mortality percentage in 3 age periods. *Pneumonia for 1880 unknown.

A glance at the charts (1 and 2) showing the curves of population and of pneumonia mortality, distributed by quinquennial age periods, will bring into view the first correction which must be applied to mortality ratios.[1] Unfortunately the distribution of urban population in 1880 is not shown, but the general age distribution of population in that year shows that cities had a considerably larger proportion of children in 1880 than in 1900. The 45.5 per cent mortality of 1900 fell on 30.3 per cent of the population. If, as seems probable, the 48 per cent. mortality of 1800 fell on 35 per cent. of the population, then 48 per cent. in 1880 was really a lighter load than 45.5 per cent. in 1900. Here we find the true relations diametrically different from those which were at first apparent. Not a city in this country probably, and certainly not one of those cities where the apparent rise of pneumonia has excited most comment, can apply this fundamental test to its mortality statistics.

Next we must try the ratios by what we know, or think we know, about the causes of death.

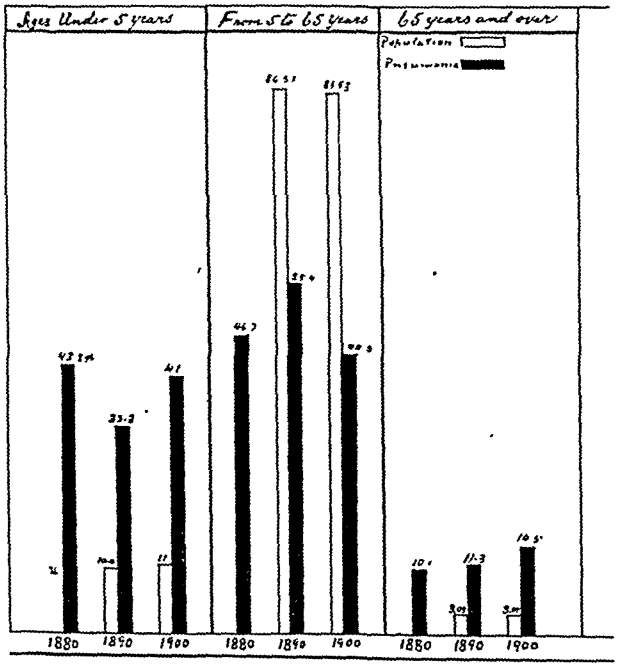

Chart 2.—United States Census, 1880, 1890, 1900. Percentages of urban population in 3 age periods. Percentages of urban pneumonia mortality in 3 age periods. Urban population for 1880 unknown.

The apparent ratios of death from pneumonia to deaths from all causes since 1850, as displayed in the United States reports, are as follows:

		Increase.	Per cent.
1850	.... 37.55 per 1,000 deaths		
1860	.... 68.74 per 1,000 deaths	31.19 points	83.00
1870	.... 81.28 per 1,000 deaths	12.54 points	18.24
1880	.... 83.30 per 1,000 deaths	2.02 points	2.5
1890	.... 87.37 per 1,000 deaths	4.07 points	4.8
1900	....106.1 per 1,000 deaths*	18.73 points	21.46

*Known causes.

Note that the twelfth census states for the first time the ratio of pneumonia to known causes. The previous ratios included unknown causes and need corrections which the reports appear to furnish, though unfortunately we can not rely upon their accuracy.

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[1] The original charts (1 and 2), showing quinquennial age curves, could not be satisfactorily reproduced. The charts here substituted, showing but three age periods, illustrate the argument less forcibly. The same remark applies to Chart 12.

The deaths from unknown causes are said to have varied from 1850 to 1900 as follows:

1850	13.69	per cent. of the total mortality
1860	11.1	per cent. of the total mortality
1870	3.5	per cent. of the total mortality
1880	4.9	per cent. of the total mortality
1890	3.916	per cent. of the total mortality
1900	3.904	per cent. of the total mortality

Correcting our apparent ratios for pneumonia, we shall have: (Chart 3.)

		Increase.	Per cent.
1850	43.50 per 1,000 deaths		
1860	77.33 per 1,000 deaths	33.83 points	75.4
1870	84.23 per 1,000 deaths	6.90 points	9.0
1880	84.44 per 1,000 deaths	.21 points	.25
1890	90.06 per 1,000 deaths	5.62 points	6.6
1900	106.1 per 1,000 deaths	16.04 points	17.8

Meanwhile our views have altered as to what are unknown causes. In 1850 a death from "fever" was a known cause. So were deaths from "wasting," "worms," "teething," "rage," "fright," "grief," "congestion of the heart," "paralysis of the lungs," "swallowed a penny when a boy," and other absurdities, traceable in the statistics down to the later nineties.

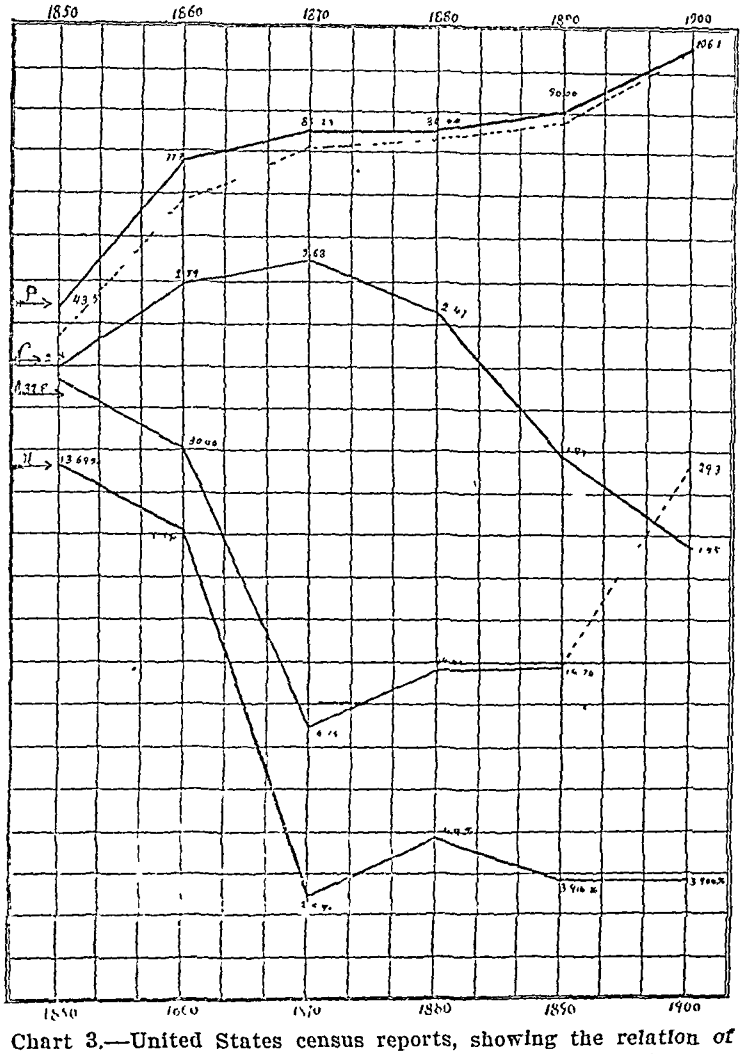

Chart 3.—United States census reports, showing the relation of pneumonia to unknown and indefinite causes of death. P, pneumonia; C, convulsions; A, old age; U, unknown causes.

In 1900 the unknown class includes debility, wasting, heart failure, infantile atrophy, marasmus, inanition (above the age of three months), *laparotomy, paracentesis*, phlegmasia, pneumatosis, polydipsia, polyuria, surgical shock, strangulation, stricture, suppuration, tympanitis, typhomania, rupture of viscera, and 27 sorts of fever, all of which in 1870 were considered definite enough to be classified among known causes.

The percentage of unknown causes for the year of 1850, if brought into accord with modern ideas, would be much more than 13.7 per cent. of all the certificates examined, and the percentages for intervening years would be materially increased, thus further diminishing the differences in our pneumonia ratios. The published pneumonia rates for the various localities of this country are all uncorrected for unknown causes, and there is no means of ascertaining what the error is on this account, but certainly a descending scale beginning *with a percentage of 13.7 in 1850 and ending with 3* in 1900, would not fully correct the ratio of pneumonia to known causes of death.

The state of Connecticut publishes a percentage table of unknown causes, though the ratios are not corrected by it. In 1878 the percentage of returns giving unknown causes of death was higher than that of the census for 1870, and this fact supports the view that the census percentages are very much too small. In 1878 Connecticut was a registration state, collecting her mortality data day by day at the time and place of death; while the United States Census Reports depend on the returns of a very few registration states and cities, supplemented, or confused as the case may be, by the reports of unskilled lay enumerators making inquiry in May concerning all the deaths of a preceding twelve months.

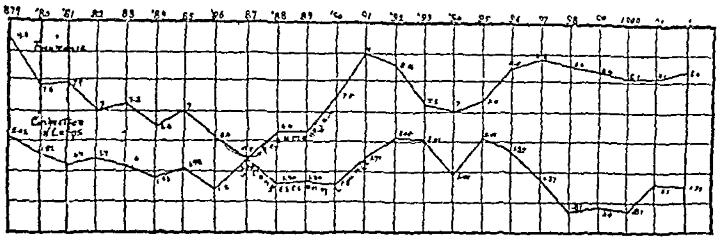

Chart 4.—District of Columbia, showing the symmetrical relations of pneumonia and congestion of the lungs with the striking effect of influenza's advent in 1890.

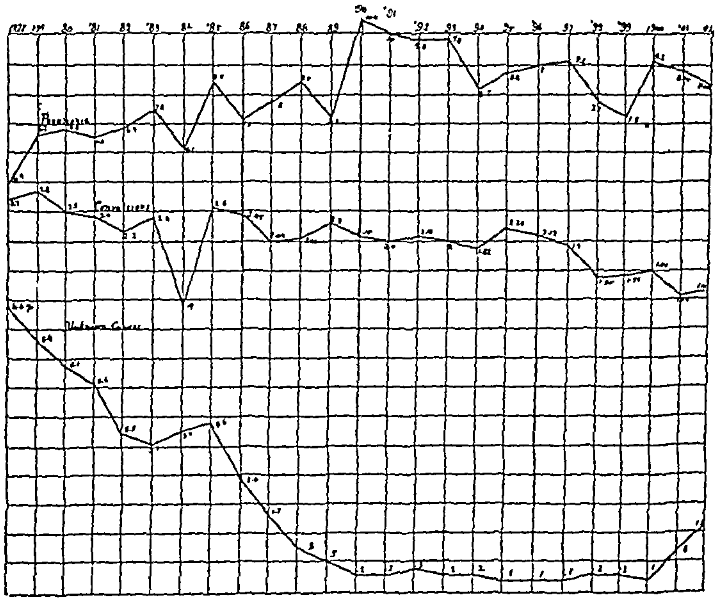

Chart 5.—Connecticut. Showing history of unknown causes. Illustrating the confusion between convulsions and pneumonia. Tendency to diverge in parallel motion. Relation of influenza suddenly appearing in 1890. Unknown causes are included in these ratios.

The Connecticut percentage for unknown causes falls year by year from 6.6 per cent. in 1878 to two-tenths of 1 per cent. in 1890. It does not rise above three-tenths of 1 per cent. until 1901, when the international classification came into use, sending the ratio of ill-defined causes up in two years to 1.3 per cent. Fancy what would happen to the pneumonia ratios of Connecticut if they were subjected to a plus correction beginning at 1.3 per cent. in 1902 and augmented backward to 37.7 per cent. in 1880 (Chart 5).

No statement of unknown or ill-defined causes can be found in Chicago reports. In New York city reports since 1901 one can find the vague causes of death, and they amount to 4 per cent. of the total mortality. Baltimore has been employing the international classification since 1898, but the deaths classed as of indefinite causation are but six-tenths of 1 per cent. The Philadelphia registrar is cleverest of all (Chicago always excepted), for he only finds one certificate in two or three thousand too difficult for his skill at classification. The returns of Maryland, outside of Baltimore, are examined by a medical man, and so large a proportion as 6 per cent. of them are found incapable of classification and unfit for inclusion in the nosologic ratios.

Boston is silent about indefinite causes of death until 1902, when the international classification went into use, and the indefinite causes of death are found *to be about 4 per cent.* The Massachusetts registration reports give us a clue to the probable history of vague causes in Boston. The indefinite causes of death shot up in a remarkable way in 1868, when vague returns for deaths of infants were taken out of the infantile class and passed into the unclassified account for all ages. The percentage of unknown causes shot up from 1.9 per cent. to 5.4 per cent. of the total mortality, and from this point it fell to 1.17 per cent. in 1889. If the 4 per cent. correction for unknown causes in Boston in 1902 be multiplied backward to 24.8 per cent. in 1882, what will then be the relation of the ratios of any definite cause of death? If the experience of Massachusetts and Connecticut indicates so large a source of error in undefined causes, how can the error be less in Chicago or New York?

Moreover, the age distribution of the unknown and ill-defined causes of death shows that this correction applies but slightly to the middle period of life, 40 per cent. of it falling on ages under 5 years, and a small excess again on ages over 60. These corrections would undoubtedly moderate the remarkable angularity of the published pneumonia curves, and might even cause its apparent general rise to disappear.

The Massachusetts correction applied to the census figures would change the pneumonia ratio for 1880 from 83.30 per 1,000 deaths from all causes to 98.54 per thousand deaths from known causes, reducing the apparent rise of 22 points to a rise of less than 8 points in 20 years.

Statistical compartment No. 179 is not the only waste basket in our nosologic classification. Each class of diseases has a special receptacle for the certificates which appear to belong to a definite class of diseases but not to a definite nosologic title.

Old age furnishes a statistical history somewhat suggestive, though less interesting than that of undefined causes. The ratios of old age to the so-called known causes of death are, according to the census reports, as follows: (Chart 3.)

		Increase or Decrease.	Per cent.
1850	.... 32.8 per 1,000 deaths		
1860	.... 30.6 per 1,000 deaths	—2.2 points	—6.7
1870	.... 16.75 per 1,000 deaths	—13.85 points	—45.9
1880	.... 19.61 per 1,000 deaths	+2.86 points	+17.00
1890	.... 19.74 per 1,000 deaths	+.13 points	+.66
1900	.... 29.3 per 1,000 deaths	+9.56 points	+48.4

If old age were a cause of death, its ratio to total mortality should have steadily and very materially risen in 50 years, for the proportion of population above the age of 65 has risen. We find, however, that the mortality ascribed to this cause fell for twenty years, and in the next 30 years rose slightly. The apparent rise of mortality since 1890 can not, however, be explained on the view that a larger proportion of deaths were returned under this vague title. The experience of all registration states is contradicted by the figures for these wide apart years, for everywhere old age is diminishing as an alleged cause of death, though everywhere old age as a phase of human life is increasing. The deaths of the aged are nowadays far more definitely explained than 20 years ago. Of those lost to the indefinite account many have gone into the accounts of cancer and of kidney diseases, but some have gone into the pneumonia account. The apparent rise of pneumonia in the aged is fully accounted for by the increased population at advanced ages, added to the improved certification resulting from better diagnosis.

In the class of respiratory diseases there is a vague title which undoubtedly conceals part of the pneumonia mortality. It is "congestion of the lungs," a title signifying as much in vital statistics as it does in medical

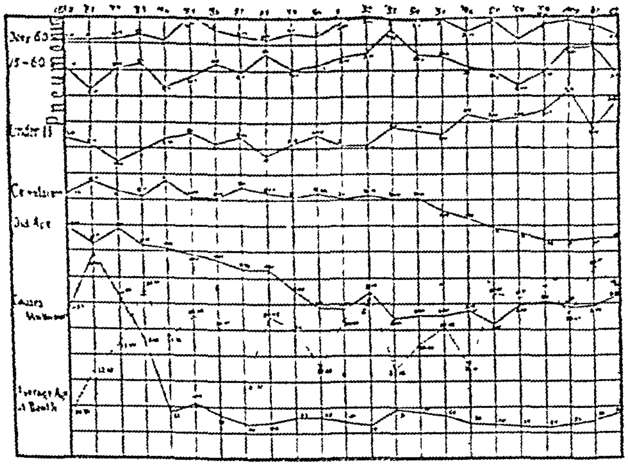

Chart 6.—Rhode Island. Showing an indefinite cause of death, "old age," declining while the average age at death increases and the pneumonia mortality above 60 does not rise. Under 15 years pneumonia rises while convulsions decline. These ratios are to total mortality, including unknown causes.

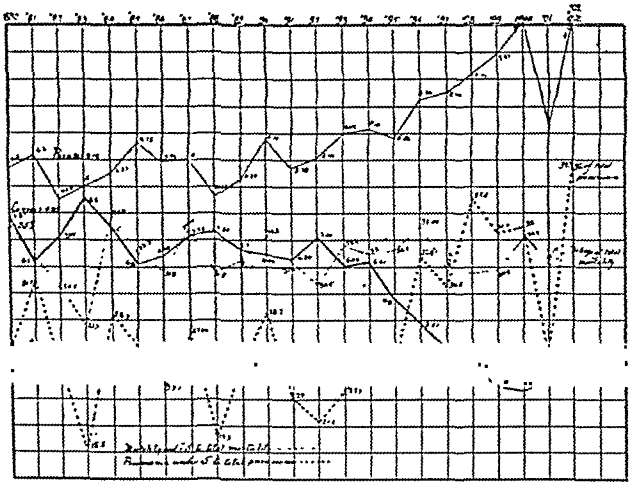

Chart 7.—Rhode Island. Showing apparent rise of pneumonia under 5, with coincident decline of convulsions and increasing ratio of pneumonia under 5 to total pneumonia. The decline of infantile mortality in general is also shown. Ratios are to total mortality under 5 and include unknown causes.

diagnosis, and no more. The District of Columbia[1] reports show the progress of this statistical item for many years. Observe chart 4, which shows pneumonia and congestion of the lungs diverging steadily year by year in parallel motion. Its responsiveness to the pneumonia curve shows that congestion of the lungs, in the District of Columbia at least, is not an empty title, although it has been unloading into the pneumonia column for years.

Certain obscure or ill-defined diseases bear relations to infantile mortality quite analagous to those borne by old age to the mortality above 60, and by unknown causes to the total mortality. One of these statistical titles has a close relation to the pneumonias of children, namely, "convulsions." Statistics of mortality from convulsions are available from 1850 to the present time. (Chart 3.) Their history in the United States Census is as follows:

	Per 1,000 deaths from all causes.	Per 1,000 deaths from known causes.
1850	18.8	21.8
1860	23.04	25.9
1870	25.9	26.8
1880	23.6	24.7
1890	18.9	19.7
1900	.....	15.5

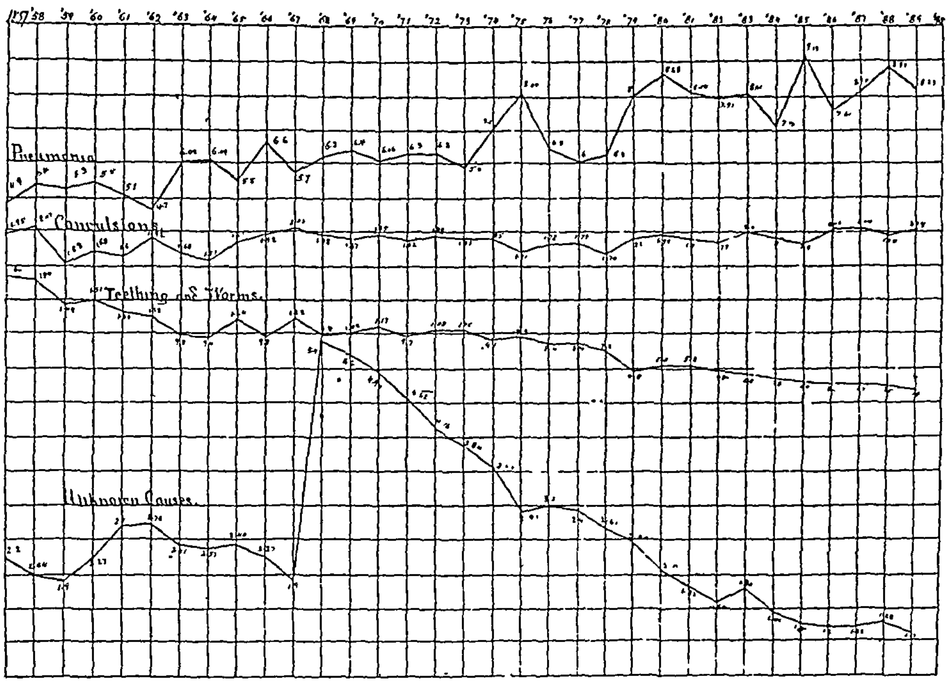

Chart 8.—Massachusetts, 1857 to 1890. Showing progress of the pneumonia ratios for all ages in relation with the progress of "unknown" causes and with two indefinite causes.

For the last decade, while pneumonia has been rising from 90.06 to 106.1, convulsions have fallen from 19.7 to 15.5 per 1,000 deaths from known causes. In the same period the death rate, for convulsions, per *100,000* population, has fallen from 56.2 to 33.1. The ratio of convulsions per 1,000 deaths from known causes at known ages has dropped from 33.5 to 2[illegible]4.

The relations of convulsions to quinquennial periods under 15 are as follows: In each 1,000 deaths under the age of 5 years there were charged to convulsions in 1890, 67.05; in 1900, 59.5. In each 1,000 deaths between 5 and 10 years, 15.44 in 1890, and in 1900, 11.3 were charged to convulsions. In each 1,000 deaths between 10 and 15 years of age there were charged to convulsions in 1890, 8.45; in 1900, 5.3. This is a remarkably consistent statistical exhibit of the progress of the mortality records toward definiteness.

Convulsions in children mask pneumonia more than any other cause of death, and one can safely say that a major part of the diminishing mortality from convulsions has, through improving diagnosis, been transferred to the pneumonia account, though from the statistical point of view this means no more than a step or two toward definiteness. At the present time every textbook warns one not to be misled by convulsions into overlooking pneumonia, and the importance of convulsions in the symptomatology of pneumonia is strongly emphasized. The diagnosis of pneumonia in children is indeed a very modern refinement of medicine, and dates from the comparatively recent inclusion of pediatrics among the essential subjects of college training.

One can not derive from the published statistics of large cities the relations of convulsions to pneumonia, but it seems quite significant that the weekly bulletin of Chicago has recently commented on the 40 per cent. decline of mortality from nervous diseases in the present decade, as compared with the decade preceding. The great part of that gain is a 60 per cent. reduction of the mortality from convulsions. It will be safe to say that 95 per cent. of the deaths charged to convulsions in Chicago fall on the period of life below 5 years, and that no more than 15 per cent. of these cases were in any proper sense diseases of the nervous system. A majority, at least, of these cases were pneumonia, and undoubtedly the pneumonia account has fattened on the alleged decline of nervous diseases.

The relations of pneumonia to convulsions are shown on several of the accompanying charts, and here, as in the case of congestion of the lungs, one observes a tendency to rise and fall together, particularly in the earlier part of the history. They diverge, however, the convulsions line pursuing a general downward course as pneumonia tends to rise.

For the state of Rhode Island I have been able to separate the pneumonia ratios by age periods, charting separately the pneumonia ratios for ages under 15 (Chart 6), from 15 to 60, and above 60. This brings out the relation of convulsions to infantile pneumonia rather better, although the statement is not quite fair to that relation. The relations of pneumonia under 15 to convulsions would be better stated as ratios *to the* mortality from known causes under 15 than to the mortality at all ages. The published figures would not yield these ratios, but Dr. Swarts has kindly furnished me figures which yield a still more striking illustration, namely, the relations of pneumonia and convulsions under 5 years to the total mortality under 5 years, the relations of pneumonia under 5 to pneumonia at all ages, and of the mortality under 5 to total mortality;

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[1] The apparent pneumonia history of the District of Columbia has attracted much attention as the "exception." The crude statistics indicate a decline of pneumonia. The age distribution of the population of Washington is very different from that of any other city in the country. In this respect it resembles none of the states adjacent. The population of Washington is deficient below the age of 20 and above the age of 60 years. It lacks precisely the elements of population which are said to have suffered the increased incidence of pneumonia. The average age at death has steadily increased, but it is doubtful if the average age of the living has materially altered in Washington in the past 20 years. If the statistics of Washington could be studied for pneumonia under the age of 5 years, it should and probably would appear that the returned mortality for pneumonia has increased, but the tables do not yield the necessary data, though Washington prints better statistics of mortality than any other large city in the country.

all for the period of time covered by the preceding chart (Chart 7).

The chart for Massachusetts contains, besides convulsions and unknown causes, the mortality ratios for "teething" and "worms." In 1897 only 1.3 deaths in "worms" are given definite consideration in the mortality statistics of Massachusetts down to the year 1900, when these items were lost by the adoption of the international classification. The relations of "teething" and "worms" to present-day mortality may very well be ignored, but their relations to our vital bookkeeping in the past may not be ignored. In 1857, 18.6 deaths in every 1,000 deaths at all ages, were attributed to "teething" and worms." In 1897 only 1.3 deaths in 1,000 are found under these heads. Different and more definite relations of infantile pneumonia are shown in Chart 9 from the experience of Massachusetts between 1889 and 1902.

A single registration office that I know of keeps separate account of the diseases of the brain and nervous system of children. My friend, Henry Mitchell, of New Jersey, furnishes this statistical account for comparison with the pneumonia account. The graphic statement is quite a remarkable one, showing the two curves separating in parallel motion so uniformly as to leave no doubt, in my mind at least, that the pneumonia account is fattening on the decline of its too responsive companion. Let me remind you again of the diagnosis of pneumonia in children. Its symptoms may include convulsions, stiff neck, opisthotonos, Kernig's sign, and the tache cérébrale, the cardinal signs, till recently, of meningitis. (Chart 10.)

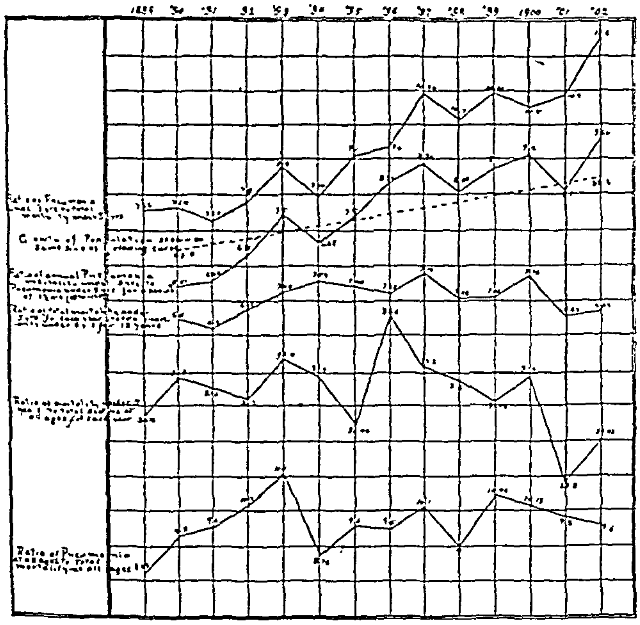

Chart 9.—Massachusetts, 1889 to 1902. Showing apparent rise of pneumonia under 5, increasing independently of the proportionate general mortality for that age period; showing the ratio of pneumonia for each year to pneumonia for 13 years, in the age period under 5, increasing but slightly in excess of growth of population.

For the state of Michigan I have been able to chart the ratio of pneumonia under 5 to the mortality from specified causes under 5, and to show the progress of convulsions and of unknown causes in the same relations. The relations of all these curves to the proportion of total mortality borne by children under 5 is also shown. A particular point of interest in this chart is the extremely irregular curve of unknown causes. Of course the unknown causes pursued in reality no such eccentric course. Rather does it indicate that Michigan registrars were like the rest of us, long in acquiring the Socratic merit of knowing that they did not know. From 1884 to 1889 a large number of obscure causes of death in infancy appear to have been restored to the classified nomenclature. If the plan of compilation used in 1883 had continued in use to 1889, the ratios would have traveled as high as they do in the nineties until 1897, when a much more stringent exclusion of vague causes was practiced, sending up a ratio that otherwise would have fallen. (Chart 11.)

In this state, too, the advent of influenza in 1890 had a remarkable effect on both pneumonia and convulsions. Both the ratios fall a long way in obedience to the strong impression made by the grip on the medical mind and probably also on the registration office. This precipitate decline marks the period when the physicians and registration officers of Michigan came very near calling a spade a spade, though they have, in common with physicians and registrars elsewhere, been hiding influenza in the pneumonia account ever since that year.

One must regret that the mortality statistics of the large cities can not be studied from the published reports. It is a reproach that the mortality of these cities is not at least put into condition for study before publication. The fact that crude statements are published without any mention of their elements, is of itself sufficient ground for refusing them credit. For New York it may be said that it is difficult to find collateral evidence of the delusiveness of her pneumonia statistics. Chicago, however, does not confine her remarkable statements concerning mortality to the subject of pneumonia. Some of Chicago's detached utterances are difficult to reconcile. For instance, when we are told that from November, 1903, to May, 1904, there were 3,568 deaths from pneumonia, one may ask whereabouts on the population the mortality fell?

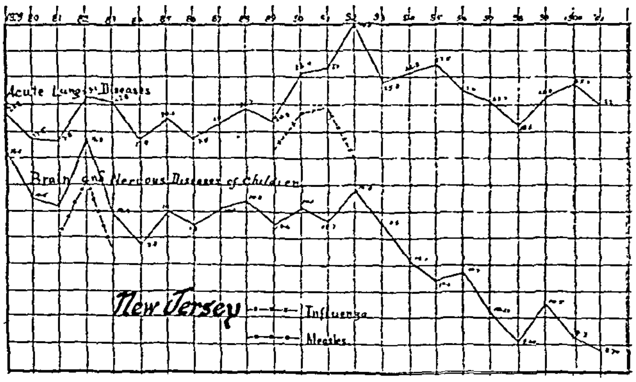

Chart 10.—New Jersey. Showing the mortality account of brain and nervous diseases of children unloading into the mortality account of acute lung diseases. The chart at 1892 suggests marked alteration either in the death certification or statistical treatment of influenza.

Above the age of 65, Chicago has but 2.46 per cent. of her population. The large American cities (including Chicago) have 3.07 per cent. of their population above 65. The Chicago figures for pneumonia impose a mortality 30 per cent. excessive on a population 20 per cent. short. One can not compound mortality at this rate.

At ages between 5 and 65 pneumonia is declining, and Chicago should derive a profit from this fact, for she has 86.3 per cent. of her people in this period, against the 85.93 per cent. in other large American cities. The excessive mortality can not fall on this period.

Chicago has below the age of 5 years, 11.24 per cent. of population, against 11 per cent. in this period in other large American cities. This part of the population, according to urban experience in recent years, must carry approximately 46.4 per cent. of the pneumonia mortality.

According to a recent bulletin the present proportion of deaths under the age of 5 is 21.8 per cent. of the total mortality, about 4 points less than it has been in years. The pneumonia mortality of Chicago is said to be 22.32 per cent. of the total mortality. The use of exactly these figures would result in an absurdity so gross that I hesitate to utilize it. Let us assume as Chicago's proportionate mortality what she says is her average, 26 per cent., and we shall have the statement that 26 per cent. of all deaths include not less than 37 per cent., and perhaps as much as 46 per cent. of the deaths from that cause which itself causes 22.32 per cent. of the total mortality. The arithmetical result of this sad disarrangement is that of every 1,000 deaths in Chicago under the age of 5 years, between 318 and 471 must have died of pneumonia.

There is no conceivable way of adjusting 3,568 deaths from pneumonia to the roll of the living or the dead in Chicago without producing as absurd relations as these. Instead of 21.8 per cent., 31.8 per cent. of total mortality for the period of life under 5 years is the lowest figure possibly consistent at the same time with human experience and with Chicago's reported pneumonia mortality. On the other hand, if 21.8 per cent. is approximately the proportionate mortality of Chicago for the age period under 5 years, the pneumonia mortality must be counted down from 3,568 to 2,880 before it reaches the limits of credibility.

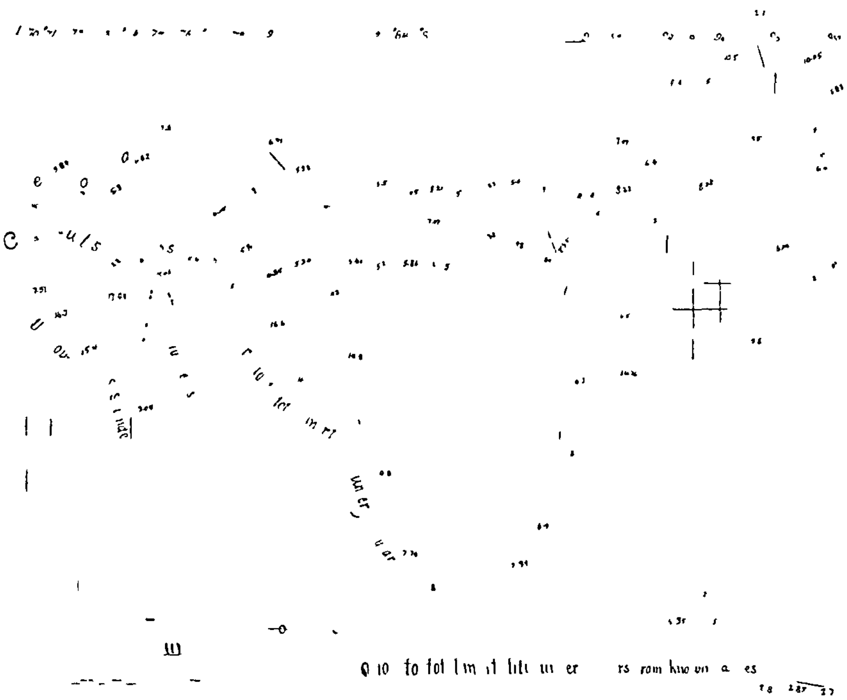

Chart 11.—Michigan. Illustrating the confusion of pneumonia with convulsions, especially in the years 1871, 1878, 1881, 1882 1883, 1888, 1889, 1890, independent of the fluctuations of unknown causes—in the years 1891, 1892, 1893, 1897, 1898 the same confusion exaggerated by the fluctuation of unknown causes. At the year 1890 the chart derives its peculiar character from the reference of many deaths under 5 to influenza—convulsions and pneumonia, both falling, notwithstanding a large rise in the unknown causes. Unknown causes are excluded from the ratios.

The bulletin says again that the present season is the most favorable in the history of the city so far as childhood is concerned. Great gratification is expressed at the "phenomenal infrequency of the contagious diseases." Since the first of the year there are said to have been but 9 deaths from measles, against 190 in a like period last year, but 91 deaths from scarlet fever against 167 in a like period last year, but 8 deaths from whooping-cough against 186 in a like period last year. Now Chicago is on earth. It is situated in one of the United States, is inhabited, and its people have the characteristics of the human race, except that they can suffer a phenomenal rise of pneumonia, associated with a more phenomenal fall of measles, scarlet fever and whooping-cough. In this respect the history of Chicago in 1904 is unique in the experience of Illinois, of the United States, of the world, and of Chicago.

These representations of the history of indefinite causes in general exhibit the progress of medical diagnosis and of registration in the general direction of definiteness. They show that improvement in medical diagnosis has a far more serious effect on the significance of the figures than is generally admitted. In the history of the very indefinite and unknown causes one sees so large an error as to vitiate the statistics for practically all the definite diseases, which are said to be rising. In the infantile mortality especially, one sees a number of vague causes of death gradually disappearing from the tables, while most of the definite affections are at the same time declining. There is but one possible explanation of the declining mortality charged to such vague statistical accounts as teething, worms, convulsions, brain and nervous diseases of children, and that explanation is that deaths long ago attributed in large numbers to these causes are now receiving at the hands of physicians more definite nosologic reference.

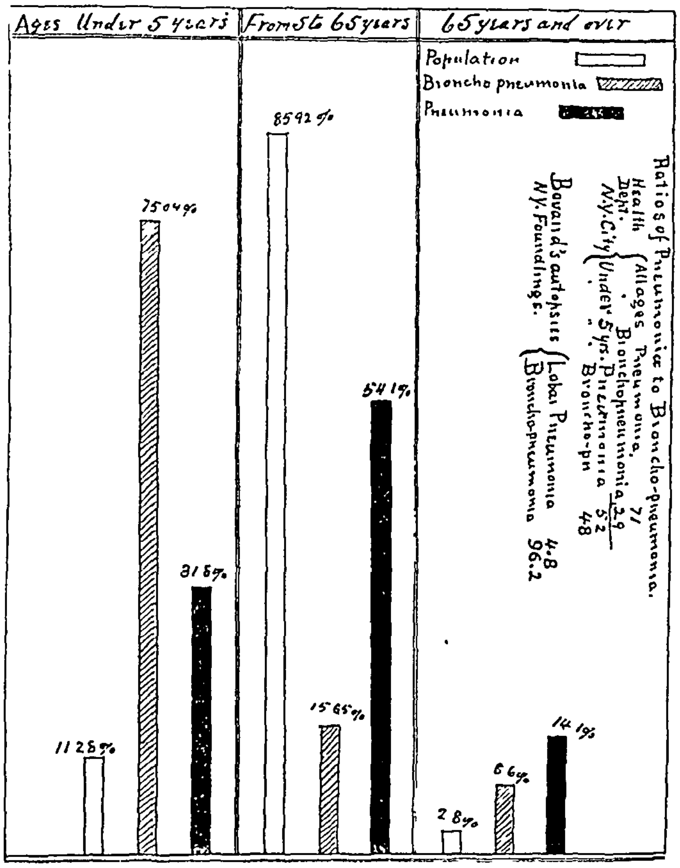

Chart 12.—New York City, 1901. Percentages of population in 3 age periods. Percentages of pneumonia mortality in 3 age periods. Percentages of bronchopneumonia in 3 age periods.

Certain important diseases of infancy are declining, and their decline can be accounted for. A single rising account has appeared in the history of infantile mortality, and the conclusion is to me irresistible, that the one rising account has profited by the decline of the indefinite causes of infantile mortality.

If such corrections as I have suggested be applied to the statistics, we shall, perhaps, not seriously diminish the importance of pneumonia as a cause of infantile mortality at the present time. So far, indeed, the argument simply brings the past and unsuspected importance of pneumonia into view, and at that point we should have to stop if pneumonia were a definite cause of death. But the term pneumonia is not, either in the tables or in its medical use, a definite statement of a cause of death. In medical parlance pneumonia has grown less definite in the course of time. In statistics the term is less definite than in medicine, although it preserved the appearance of definiteness until the adoption of the international classification, when the comparatively modern compounded word, bronchopneumonia, received a separate index.

In the United States census for 1900, although the international classification is used, one finds under the head of pneumonia no differential statement such as this classification provides for. For the local registration offices in general, one may say that differential statements can rarely be found in the published records where the international classification is not used, while in the offices employing this classification differential statements are obtainable only for the past three or four years.

All the statistical sources utilized in this study give differential statements for a total of 13,608 deaths, of which 9,263 were returned under the head of pneumonia, and 4,340 under the heads of bronchopneumonia and pleuro pneumonia.

The published reports for New York furnish hardly any and those of Chicago no means whatever of determining the probable line of cleavage between the two sorts of pneumonia, but if the per cent. derivable from the figures given hold good for these cities, 32 per cent. will be cut off the returned mortality for the past four years. One can not say, however, that the 32 per cent. error which is fairly chargeable against the records for the years 1900-1902 would hold good for any equal antecedent period. The information yielded by the New York City report for 1901 is shown in Chart 12.

The statistics for Boston throw a curious light on this point. The pneumonias were differentiated in that city in the published reports before 1900, but they were distributed in such a way as to make it appear that lobar pneumonia has been decreasing, while bronchopneumonia has been increasing. The bronchopneumonia for 1896 was 15 per cent. of the whole pneumonia account, in 1897, 17 per cent., and in 1899, 22 per cent. Since 1900, 46.7 per cent. of the pneumonia account of Boston is made up of deaths returned as caused by bronchopneumonia.

One might say that it is right to add bronchopneumonia to pneumonia now, the figures should be recovered and added to the pneumonia of the past. But the rise of bronchopneumonia does not mean in medicine and it should not mean in statistics anything added to pneumonia. Traced backward, bronchopneumonia will be found to disappear, the greater part of it at least, in the bronchitis account.

The correction for certificates returned under the head of bronchopneumonia is a discount applied to the pneumonia ratios at a rate beginning with at least 32 per cent. in 1902, and diminishing year by year to zero at about the year 1880.

This would still leave a considerable though indeterminate amount of bronchopneumonia in the figures for recent years. The terms pneumonia and bronchopneumonia, although convertible terms in statistics, are not convertible terms in medical use. No physician ever writes "bronchopneumonia" on a death certificate when he means lobar pneumonia, but many physicians write simply "pneumonia" when they have recognized the cause of death as bronchopneumonia. Bovaird's recent figures for 500 autopsies at the New York Foundling Asylum gave 95.2 per cent. of bronchopneumonia to 4.8 per cent. of lobar pneumonia. Fancy the curves on these charts cut to fit this ratio, and one can see the end of the pneumonia sensation. If the bronchopneumonia could, however, be eliminated or distinguished, the pneumonias remaining would still lack a definite significance.

In the manual which presumably governs the practice of officers using the international classification the instructions as to what returns are to be included under each of the two heads are interesting. Pneumonia includes deaths certified as due to acute, alcoholic, apical, croupous, infectious, bilious, typhoid, diplococcus, lobar and vesicular pneumonia, lung fever, inflammation of the lung or chest, peripneumonia, pneumopericarditis, pneumopleurisy, splenopneumonia. The title does not include death certified as due to bacillary pneumonia, caseous, catarrhal or interstitial pneumonia.

Bronchopneumonia includes catarrhal pneumonia, aspiration pneumonia and deglutition pneumonia. The bronchopneumonia of the census does not include the returns of capillary bronchitis. Capillary bronchitis is counted in the census office and in several local registration offices as bronchitis! One has no means of ascertaining what practice was followed previous to 1900, but it is certain that the practice differed from this. Practically everywhere the total pneumonia account includes all the death certificates in which the word pneumonia was used without reference to an antecedent disease of equal or greater statistical importance. In the District of Columbia the pleurisy account carries the pleuropneumonia mortality. The hypostatic, traumatic, surgical, septic, terminal and ether pneumonias are included in the pneumonia account whenever the death certificate fails to mention an antecedent condition having recognized importance as a cause of death.

The age distribution of bronchopneumonia is interesting. A very large part of it—75 per cent.—falls on ages under 15, but no part of life appears to be exempt from it; 25 per cent. is far too much to charge to ages above 15. I have charted the pneumonia and bronchopneumonias separately for New York by ages. Enormous as the disparity appears below the ages of 5 years, the actual contrast is greater. (Chart 12.) If the bronchopneumonias between 15 and 50 were all charged to tuberculosis, the bronchopneumonia statistics would be better and the tuberculosis statistics no worse. Above the age of 60 the use of the term bronchopneumonia does not express antemortem diagnosis.

Our study has gradually narrowed down to the question of pneumonia under 15, and in this period to the one-ninth or so of population under 5 years. Here we find that something like 90 per cent. of the recorded pneumonias have extremely various etiologic relations, and have no right whatever to consideration under a single nosologic head. Outside of mortality statistics, such thing as a primary bronchopneumonia is but rarely recognized. In a great majority of instances the essential cause of bronchopneumonia can be determined clinically, and should be recorded on the certificate. Possibly since 1890 the diagnosis of respiratory affections in childhood has been in a single respect more difficult. Since the advent of influenza many bronchopneumonias are perhaps not referred to their etiologic factor so easily as are the bronchopneumonias of measles, whooping cough, scarlet fever, diphtheria, etc. Bronchopneumonia is a secondary or complicating condition, and whenever the primary causative factor is known a death from bronchopneumonia should receive appropriate statistical reference. When the certificate fails to designate the proper statistical reference, the record should at least be disposed of in such a way as not to obscure the relations of an agent of death as definite and important as lobar pneumonia.

There is no proof that lobar pneumonia has grown more prevalent or more fatal at any period of life. There is no considerable evidence of an increase at any period of life save that under 5 years, and here pneumonia has simply come into view and demands some consideration. Pneumonia is not the "Captain of the Men of Death." The claims of six destroyers stand between pneumonia and the distinction of leadership.

CONCLUSIONS.

1. The returned mortality of the United States for ages between 15 and 60 during the past twenty years shows a diminishing mortality from the class of respiratory diseases commonly returned as pneumonia. Of the pneumonias occurring in this age period a large majority are true lobar pneumonia. Fifty-eight and a half per cent. of the population of the United States, and 66.5 per cent. of the population of cities are between the ages of 15 and 60. The incidence of lobar pneumonia on a major part of the population is therefore diminishing.

2. The return mortality of the United States, for ages above 60, indicate that the mortality from the class of respiratory diseases commonly returned as pneumonia has increased from 21.9 per cent. to 22.6 per cent. in ten years, the population at the same age in the same period having increased from 6.2 to 6.6 per cent.

The urban mortality for the same age has grown in ten years from 16.1 to 19.5, and has been accompanied by an increase of population in that age period laterally from 5.23 to 5.27 per cent. Several pathologic conditions added to the group of pneumonias, and not provided for in statistics, are included in the returned mortality of pneumonia for ages above 60. For 6 per cent. of our total population lobar pneumonia may have increased in the past ten years, though satisfactory evidence of an increase has not been offered.

3. The return mortality of the United States for ages under 15 (about one-third of the total population) shows an apparent rise of mortality for the group of respiratory diseases commonly classed as pneumonia. The acute respiratory diseases of children were in former years commonly mistaken for affections of the nervous system. Year by year for thirty years increasing numbers of deaths formerly found in the indefinite accounts, and in the class of nervous diseases, have been transferred to the class of respiratory diseases and especially to the pneumonia account.

Of the mortality recorded as due to pneumonia under the age of 15 years, not more than 10 per cent. is due to lobar pneumonia. A small though considerable incidence of lobar pneumonia in children under the age of 5 has come into view of late years, but there is no evidence that lobar pneumonia has increased in this age period. The remaining 90 per cent. of the recorded mortality ascribed to pneumonia includes the conglomerate group of bronchopneumonias, nearly all of which are secondary or complicating causes of death, and should be referred in the mortality tables to the primary causes of death.

4. Since 1890 a new cause of infantile mortality has come into view, an acute respiratory infection, attacking infants of 2 years old and under, commonly returned under the diagnosis of pneumonia, sometimes returned as due to a disease of the nervous system, and probably due to influenza.

5. The mortality registration of American cities is in general very poor. The crude rates and ratios offered by certain cities as evidence of a rising pneumonia mortality are inconsistent with the mortality statements concerning other causes of death, and with the characteristics of the populations concerned. They represent a perversion of statistics which must eventually bring discredit on American mortality registration.

DISCUSSION.

Dr. Benjamin Lee, Philadelphia, said that we all remember the criticism of the individual who divided lies into three classes—lies, confounded lies and statistics. Dr. Lee does not second that particular definition of statistics. At the same time he could not help thinking that we were discussing two propositions supposed to be founded on statistics, both of which have been accepted as definite and fixed, and neither of which, to his knowledge, has ever been definitely proved. It seems to him that we might expect 75,000,000 people to consume more alcohol than 10,000,000, but, taking our people as we find them, he does not think that any one can prove that at the present time intoxication is a vice of this country to the extent that it was 100 years ago. At that time a man was hardly considered a gentleman who did not go to bed drunk, while at the present time it is the exception for a respectable man to go to bed drunk. We may be increasing in the use of certain forms of alcohol, but those are the forms which are the least pernicious. The man who drinks a pint of beer does not drink as much alcohol as the man who drinks a glass of sherry, and very much less than the man who drinks an ounce of whisky. It does not seem to him that our present diseases are more due to the use of alcohol now than they were fifty years ago. There are many factors to be considered when we come to make up our minds as to statistical data and results in medicine. One of the most important factors is the question of diagnosis, and following that is the question of nomenclature. Both of these, in the period during which more or less accurate statistics have been kept, have made wonderful changes. Our advances in diagnosis have been very remarkable, and Dr. Fulton has pointed out that an immense number of diseases are now properly reported as pneumonia which formerly were not so reported. Comparatively few physicians now report infantile bronchitis and catarrh. Most of these cases are probably now reported as pneumonia.

Dr. Cressy L. Wilbur, Lansing, Mich., regrets that it is so extremely difficult to go back over the records of any state, or the United States, and obtain thoroughly reliable data as to the age distribution of any particular disease. He said that, in regard to the variations in the distribution of unknown causes in Michigan, perhaps Dr. Baker can throw some light on the matter, as the early records were compiled under Dr. Baker's personal supervision. Not only the methods of compilation change, but the men change who make the compilations. Dr. Baker, in the early compilation of the Michigan statistics, formed a book of practice, which served as a guide to the work. The statistics at that time were compiled according to the classification of Dr. Farr. During Dr. Wilbur's first experience in compilation he used this classification, but he had no guide to its practical employment. He simply used his best judgment. At the Montreal meeting of the American Public Health Association, in 1894, he suggested a new classification. At that time there was no hint or promise of an international agreement. As soon as there was a prospect of a successful international classification, beginning with the Bertillon system in 1898, he began to use it. This system was revised in 1900, the revision going into effect in 1901, since which time he has adhered strictly to the "international classification," as it is now called. That makes four systems that have been used in Michigan, besides one system which was employed by three different compilers, varying in methods to some extent. This shows the necessity of having a proper guide in this matter if our statistics are to be used for comparisons even in the same state, and the international classification, if strictly followed, should give more satisfactory results than those shown by the diagram. The United States Census reports for the year 1900 were for the census year 1899-1900. The international classification was not used for that compilation, so that the results shown in the last line should compare with those for the preceding censuses. The International Commission of Paris in 1900 did not seem to give this question of the proper compilation of pneumonia very much consideration. A distinction was made between bronchopneumonia and "pneumonia," the latter supposed to correspond closely to croupous pneumonia; but, unfortunately, among the deaths reported from "pneumonia" are included many deaths from bronchopneumonia or catarrhal pneumonia, and the statistics are thereby vitiated. Dr. Tatham of the English Registrar General's Office recently introduced a new classification, and now makes four divisions of pneumonia. Epidemic pneumonia is placed among the infectious diseases. Bronchopneumonia or catarrhal pneumonia and acute lobar or croupous pneumonia are stated separately. In the fourth class appears "pneumonia," unqualified, with indications that it is an indefinite term, not to be chosen if possible to specify more definitely. Dr. Wilbur stated that the statistics of pneumonia are also confused by the fact that many deaths from "pneumonia" occur as the terminations of chronic diseases and are merely terminal infections or complications. When pneumonia is the result of whooping cough, measles, or any of those diseases, it should be charged to the primary cause.

Dr. J. N. Hurty, Indianapolis, said that, attracted to this subject by constant reference of the bulletin of the Chicago Board of Health, he commenced to study the matter very closely in Indiana and tabulated and compared the pneumonia periods, as he called them, namely, November, December, January, February and March of each of the four last years. He found that during the last period there were fewer deaths than the average of the entire four years, and so, evidently according to our statistics, while there was no increase in the total deaths from pneumonia, still, when they compared the results by the different ages, they found an increase in those under 5 years of age. There were more pneumonia deaths during the last period than the average for the four years. During the first period, November and December, 1899, and January, February and March, 1900, there were quite as many deaths from pneumonia in Indiana as during the same periods in 1903 and 1904. The weather of the last period was very bad, being very raw, cold and wet. The humidity was high. In the first period there were quite as many pneumonia deaths, but the weather was comparatively mild, so he concluded that the weather was not causing an increase, if there was an increase, which did not appear by these comparisons. In one particular the two periods were alike in having the same number of deaths from pneumonia and in this, that measles, influenza and whooping cough prevailed extraordinarily in both those periods, and in the lower periods they did not prevail, but Dr. Hurty could not find any similarity in the weather to account for it.

Dr. Henry B. Baker, Lansing, Mich., stated that from his standpoint the method of study is fundamentally wrong. He does not think we know from that method of study whether pneumonia is increasing or decreasing. It is not a satisfactory method to determine this question by means of the ratio of deaths from pneumonia to the deaths from all causes, because the deaths from the other causes are changing. Dr. Fulton or someone should take these figures and give us the relation of the deaths from pneumonia at certain ages to the population at those same ages. We are indebted to Dr. Fulton for calling attention to the influence of these other questions on the subject, but it is too early to apply these corrections which he seeks to apply. We haven't anything to apply them to to the best advantage.

Dr. Benjamin Lee, Philadelphia, believes that a board of health without a proper system of registration of vital statistics is a truncated animal, and he is simply longing for the time when Pennsylvania will take as firm a stand as any other state. There are one or two points in regard to this question of pneumonia which have not been touched on. One is the influence of the presence in this country for the past ten years of the grip germ. Unquestionably a great many of the cases reported as pneumonia take that special form. The other point is the greater prevalence of pneumonia in cities as compared with the rural districts. Dr. Lee believes that street dust is a great factor in producing the disease, and whether that street dust contains the pneumococci or whether it contains some other poison is in each case an open question. He believes that long periods of dry weather, during which the atmosphere becomes filled with dust, are more frequently a source of danger than rainy weather. A most interesting experiment was tried in the city of New York many years ago. They were laying out a large park and had set out a great number of elm trees, and during the first two years all those trees died. When they came to take up the trees to find out the cause of death they found that all the roots of the trees were dyed blue, and on investigation they discovered that the dye material was Prussian blue, produced by the reaction of iron, potash and nitrogenous material in the street dirt, which had been used as a fertilizer. Dr. Lee has never followed up the question as to what effect the breathing of dust laden with Prussian blue would have, but he can conceive that it would have a very unpleasant action on the mucous membrane of the air passages. He does not believe that the question of street dust is at all ended when we talk only about the bacilli. He believes that there are other impurities and poisons in the street dust which may affect the pulmonary tissues disastrously.

Dr. G. T. Swarts, Providence, R. I., stated that the changes in nomenclature have been so rapid within the last four or five years that it would be difficult to compare the results with previous years. One could hardly believe the conditions existed as they are reported, and with the intent of learning something of those conditions since last February he has written to every physician who has reported the cause of death as pneumonia as to whether there was any known exposure to another case. That was for the purpose of determining if boards of health could profit by requiring isolation. At the present time it would seem that the amount of known exposure is very slight indeed. In answer to his inquiries he noticed that sometimes a physician would correct his diagnosis and state that the attack of pneumonia followed influenza. That would lead us to go back to what we call the primal cause of pneumonia, and whether the pneumococcus was present or some other organism as in measles or scarlet fever, and which has produced the inflammation of the lungs which simulates pneumonia. Until we can educate physicians to make an exact diagnosis and be more particular as to what we, as registrars, desire from them our statistics will still be in a chaotic state. When we attempt to draw conclusions we are very apt to be led astray unless we know the physician. The physicians of the state of Rhode Island are taking up this subject with interest, especially as they have been pestered for the last few years with questions from the registrar as to what they mean or do not mean to give as the cause of death.

Dr. John S. Fulton said that this subject, like many others of the sort, is in a state of confusion. To show that was one of the purposes of the paper. The argument which he made is for the most part destructive, but is none the less a necessary argument. The registration offices in this country do not furnish the data necessary to a satisfactory study of the subject. Accurate numerical statements concerning the elements of population and concerning the distribution of mortality are lacking. The heterogeneousness of some of the mortality accounts has not been sufficiently considered by many students of the subject, and some registration offices have published misleading and alarming statements based on very insufficient data. The influence of improving diagnosis has not been accorded its due importance and the history of indefinite causes of death has not been taken into account. To his mind one of the most interesting phases of mortality registration is its progress toward definiteness. As medical knowledge improves the indefinite account loses by the medical reference of a certain number of deaths to their true cause. At the same time the indefinite account gains by the statistical reference of deaths medically returned under very vague or obsolete nosological heads. The weight of movement is toward definiteness but some of our growing accounts have not become definite, and one or two, though having very definite appearing titles, such as pneumonia, have actually become less definite. The progressive unloading of the "unknown" account, of "teething" and "worms," "old age," "convulsions," etc., into other accounts gives as a general result an exaggerated view of rising accounts and a disguise of falling accounts, but no one dare say, without careful examination, how any particular account has been affected. The pneumonia account has received substantial accretions from certain more indefinite accounts, but the term pneumonia has not meanwhile grown more definite, but less so. No one is prepared to tell us exactly what the pneumonia account includes, but in the period of life below 5 years 85 per cent. of the pneumonia mortality consists of the secondary bronchopneumonias, having a variety of etiologic relations. In the present state of knowledge it matters little that the pneumococcus is more or less loosely related to many of these cases, for the relations of pneumococcus even to the massive pneumonias, which physicians have in mind when speaking of pneumonia, are not yet satisfactorily affirmed. A consideration of the figures seems to Dr. Fulton to suggest rather strongly that about 1889 a new factor entered into the pneumonia mortality of young children. This new factor may not have been the freshly imported strain of influenzal virus, but it certainly was not a new strain of pneumococcus. The relation of influenza to infant mortality has not been regarded as very important, but he suspects that the apparent pneumonia mortality would be very much reduced by successful prophylaxis of influenza, and that profits therefrom would be realized most amply by that part of the population under 5 years of age.

THE MANAGEMENT OF HERNIA IN INFANCY AND CHILDHOOD, WITH RESULTS OF OPERATIVE TREATMENT.*

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The fact that at least one-third of all the cases of hernia occur in children under the age of 14 is sufficient evidence of the importance of this subject.

Most cases of hernia in infancy and childhood are regarded as congenital, but this is a term that has given rise to much confusion. By congenital hernia we do not mean a hernia that existed at birth, but a hernia due to the failure on the part of Nature to close the process of peritoneum that has followed the testis in its descent into the scrotum. If the hernial sac is found at operation to communicate with the tunica vaginalis of the testis, we speak of it as congenital hernia. If, however, the pouch of peritoneum has become closed off just above the testis, but still leaving an open funicular process extending through the canal, or even into the scrotum, we still have a condition quite as favorable for the development of a hernia as in the former typical congenital variety. This latter variety, strictly speaking, would be a congenital hernia, although there is no way of differentiating it, anatomically, from an acquired hernia.

It is probable that the great majority of herniæ in children under the age of 5 or 6 years belong to these two varieties, and owe their existence to a congenital or preformed hernial sac. An analysis of our own series of operations for hernia in children shows that in more than half of the cases there is no communication between the hernial sac and the tunica vaginalis. Given the existence of a congenital or pre-formed sac, the immediate or exciting cause may be anything that greatly increases the intra-abdominal pressure, e. g., crying, coughing, straining at stool, constriction of the abdominal cavity by too tight bands.

The main question under consideration in the present paper is how to treat a hernia after it has developed, and the first point to decide is: Shall the treatment be mechanical or operative?

We believe that truss treatment should always be the method of choice in children under the age of 4 years, although not a few surgeons, both here and abroad, are now advocating operation as the primary method of treatment in infants. While I believe it a good general rule not to operate until the age of 4 years has been reached, there are certain important exceptions:

1. If there is a history of strangulation that has become reduced by taxis, I believe that an operation is indicated, no matter how young the child.

2. In cases in which, despite carefully directed truss treatment, the hernia has become irreducible, or reducible with difficulty, I think early operation should be advised.

3. In cases in which the rupture can not be controlled by a truss and, as a consequence, is gradually increasing in size.

4. In all cases of femoral hernia, the reason for prompt operation in this class being that a cure by persistent truss treatment is practically unknown at any age.

5. Immediate operation is indicated in all cases of hernia associated with reducible hydrocele or fluid in the hernial sac, inasmuch as it is impossible to control the rupture by means of a truss, and there is, hence, nothing to be gained by waiting.

RESULTS OF MECHANICAL TREATMENT IN CHILDREN.

Roughly speaking, I believe that herniæ in infants and children under the age of 4 years can be cured by carefully directed truss treatment in about two-thirds of the cases, although it is probable that, in after years, a considerable percentage will relapse.

Beyond the age of 4 years, in a fair proportion of the cases, a cure can be effected by means of a truss, provided the truss is properly fitted in the first place, and the child is regularly seen by a surgeon for a period of not less than two years.

METHOD OF MECHANICAL TREATMENT.

There are several kinds of trusses, all of which are of nearly equal value in the treatment of hernia in children. Personally, I consider the "opposite-side" or "cross-body" truss (Knight truss, Fig. 1) the best. It consists of a light steel frame, extending three-quarters the distance around the pelvis, the remaining distance being covered by a strap. The spring is covered with rubber tubing, and the pad is attached to a short steel arm fastened at right angles to one end of the spring. The spring is so tempered that any desired pressure can be easily secured. Another very good form of truss is the frame truss of the Hood or Pomeroy type (Fig. 2).

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

A truss can not be applied too early. As soon as a rupture in an infant has been recognized, the truss should be immediately fitted and should be worn night and day.

Umbilical hernia in children generally develops during the first year of life, and in the great majority of cases can be cured by mechanical treatment. Operation is very seldom indicated. One of the best methods of treatment in these cases is by means of a small wooden button mold, covered with rubber plaster and placed over the opening. This pad is held in place by a circular strap of rubber plaster, two inches in width, entirely surrounding the abdomen. Care should be exercised not to cause any appreciable constriction. This should be changed every week or ten days. In rare cases with very large opening, the hernia may be found to persist despite careful treatment. In these cases operation should be performed. The method of excision of the umbilicus, including the hernial sac, with careful suture in three layers—with or without overlapping the fascia—will almost always result in a permanent cure.

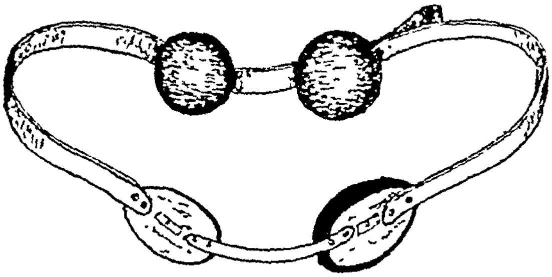

Fig 1.—"Hood" or "Pomeroy" truss

Epigastric herniæ are not very rare in children, and if the opening is large enough to admit the tip of the index finger an operation will probably be needed to effect a cure. They do not tend to spontaneous cure, as is generally the case in umbilical hernia in children.

DURATION OF TREATMENT.

If a child has reached the age of 4 years and the rupture has not been cured, as shown by its occasional appearance when the truss is removed, then an operation should be performed. If a rupture is first noticed in a child over 4 years of age, it is a question whether to employ mechanical or operative treatment. At this age the percentage of cures by truss treatment is comparatively small, far less than in infants. In addition, the treatment, in order to be of any avail, has to be prolonged over a period of from two to three years which, to a dispensary child, means a great deal of trouble and much loss of time to the parents in bringing the child regularly to the hospital or dispensary. Hence there is much to be said in favor of an operation, which is practically sure to effect a cure in from two to three weeks' time, and, furthermore, is almost entirely free from risk. It has been our former practice at the Hospital for Ruptured and Crippled to treat all children with comparatively small and easily held ruptures for a time with a truss. However, of late the results of operation have been so uniformly satisfactory that we are now inclined to advise operation in the majority of such cases, especially in dispensary children, who seldom get proper supervision of the truss at home.

METHODS OF OPERATION.

It seems to be the impression that the radical cure of hernia in children is a much simpler matter than in adults, and that almost any method will accomplish the desired result. While it may be admitted that the results of operation in children during the past decade have been a trifle superior to those obtained in adults, I believe this fact due rather to improved methods of operation than anything else. I need only cite a series of 20 cases operated on at the Hospital for Ruptured and Crippled prior to 1890 by the methods of Socin and Czerny, with 50 per cent. of relapses in less than a year after operation, to disprove the contention that hernia in children can be cured by any method of operation.

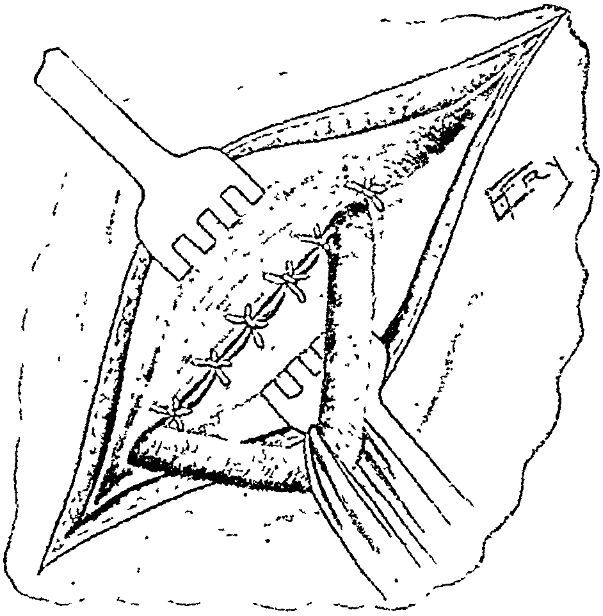

Fig. 2.—Bassini's operation (deep sutures), showing extra suture above the cord.

To operate in children in which we have to separate the hernial sac, as thin as tissue paper, and avoid cutting or tearing the slender cord, requires far more care and delicacy than the operation in the adult. With the operation carefully and skillfully done by the Bassini method, or possibly by the same method without the transplantation of the cord, the results are almost perfect.

I have as yet never cut or torn the cord, either in children or adults, and with proper care the accident should never occur. The lower end of the sac is removed if acquired, and if congenital, i. e., communicating with the tunica vaginalis, I always put in a purse-string suture which closes it over the testis.

I believe the substitution of an absorbable suture, e.g., chromicized kangaroo tendon, a great improvement over the buried silk sutures advocated by Bassini, or the silver wire so much used and lauded by other surgeons.

The method of operation that I have employed in most cases in children as well as in adults, is the Bassini method, with the modification of first placing one suture above the cord, in addition to those below, to prevent any widening of the new internal ring in an upward direction, and to substitute for the buried silk sutures used by Bassini absorbable sutures. i. e., chromicized kangaroo tendon.

After the sac has been tied off well beyond the neck, at a point where it has begun to widen out into the general peritoneal cavity, the deep layer of sutures is placed as follows: With a small tape the cord is held up and the first suture is placed so that it just touches the lower border of the cord when the latter is brought vertically to the plane of the abdomen; three to four more through the internal oblique and Poupart's ligament will suffice to close the canal to the symphysis pubis. Then the suture above the cord (Fig. 3) is inserted. This is not a part of Bassini's technic, but I believe it is of decided aid in preventing a relapse, as it strengthens the only weak point in the operation. The incision in the aponeurosis is then closed from above downward by a small continuous suture of kangaroo tendon and the skin with catgut. No drainage is used, and the wound is dressed very carefully with sterile gauze, cotton, a firmly applied spica bandage, and finally a plaster-of-paris spica is applied to give perfect rest to the parts. The wound is dressed the seventh day, and the patients are kept in bed two weeks and allowed to go out in from two and one-half to three weeks, wearing a spica bandage until four weeks have elapsed, after which time no support is worn.

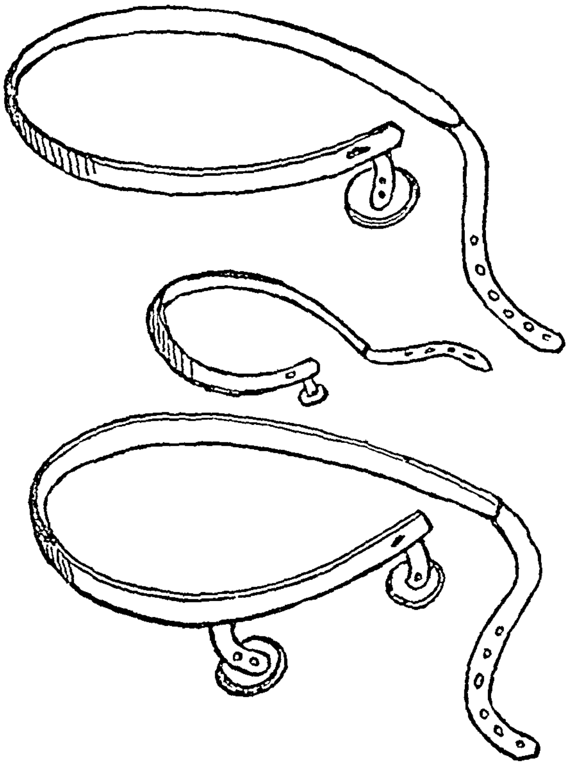

Fig. 3.—The "Knight" truss; single and double.

In a small series of cases, about 100 in number, extending back to 1892, Dr. Bull and myself have employed a method practically the same as Bassini's, without transplantation of the cord, the cord coming out at the lower angle of the wound, just above the symphysis pubis, the internal oblique being sutured to Poupart's ligament, the aponeurosis of the external oblique closed by continuous suture. In other words, all the steps are identical with those of Bassini's method, except the treatment of the cord.

This is the method that has recently been advocated by a number of surgeons as superior to Bassini's, and while they have perhaps operated on a larger number of cases by this method, these cases have not been observed for so long a period as our own. The method is undoubtedly an excellent one, but the results, as far as I have been able to determine from present data, are slightly inferior to those obtained with transplantation of the cord. There has been no atrophy of the testis following the transplantation of the cord, and the time required for the operation, with or without the transplanting of the cord, is practically the same, viz., from ten to fifteen minutes.

I have personally operated on 230 cases of inguinal hernia in the female, including both children and adults, by this method, namely, allowing the round ligament to come out at the lower angle of the wound instead of removing or transplanting it; suture of the internal oblique to Poupart's ligament, and closing the aponeurosis by a continuous layer suture of kangaroo tendon. These 230 cases have been very carefully traced, and, thus far, not a single relapse has been observed.

These results, while they go far to prove that the transplantation of the round ligament is neither necessary nor desirable, do not to the same extent prove the uselessness of the transplantation of the cord in the male, inasmuch as the cord is considerably larger than the round ligament, especially in the region of the symphysis pubis, or at the point where it emerges from the external ring. Removal of the veins of the cord is never necessary in children, and personally I believe it is very seldom indicated in adults.

COMPLICATIONS—HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

This condition is not infrequent in hernia in children, and there is by no means unanimity of opinion among surgeons as to its proper treatment. Some advise against operation altogether until the age of puberty; others advocate operation in all cases, even in infants.

Truss treatment of hernia, associated with undescended testis, is most unsatisfactory. The pad presses on the testis and causes pain, and may keep the testis within the external ring and retard its natural progress into the scrotum. The danger of producing malignant disease from the pressure of the truss on an undescended testis is far less than one would believe from the prominence given it in surgical text-books. Such a result has never been observed at the Hospital for Ruptured and Crippled during the last fourteen years, during which time upward of 60,000 cases have been treated.

McAdams Eccles of London, in his very elaborate study of the subject of undescended testis, shows that there is little foundation for this well-established belief. He states that in 48,000 males with hernia, 854 had undescended testis, and not a single case of sarcoma was observed.[1]

Bevan, in his admirable article[2] on the treatment of undescended testis, read before this Association a year ago, advises operation in most cases, even in young children.

I have operated on 38 cases of hernia associated with undescended testis, 27 of these being under the age of 14. At the Hospital for Ruptured and Crippled we were at first inclined not to operate under the age of 10 or 12, because observation showed that in many cases the testis descended into the scrotum of its own accord before the age of puberty. The danger of strangulation in these cases, even if a truss is not worn, is not great, as the testis acts as a barrier and prevents the rupture from coming down. Still, we have since found that even if the testis does descend into the scrotum, the hernia, as a rule, persists, and operation is finally necessary. For this reason we are now operating earlier than formerly.

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[1] Since this was written I have just observed for the first time a case of sarcoma of an undescended testis in a man of 35. The patient, however, never wore a truss. In my series of 22 cases of sarcoma of the testicle this is the only one in which the testis was undescended.

[2] THE JOURNAL A. M. A., Sept. 19, 1903.

METHOD OF OPERATION FOR HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

The Bassini method has been employed in most of my cases, but a little gain in the length of the cord is secured if it is not transplanted, and as the results are so nearly equal, I think it is well to omit transplantation in such cases and let the cord emerge at the lower angle of the wound. By freeing the cord very high up and by removing some of the veins, if necessary, the testis can, in most cases, be brought into the scrotum. In my early operations I tried several methods of fas*tening the testis into the scrotum, e. g., by wire frames*, but soon abandoned such methods. If the testis is to remain permanently in the scrotum, it must be so thoroughly freed from the cord that it rests in the scrotum without tension, otherwise it will finally retract to the external ring or into the canal.

I believe that the method proposed by Bevan, of separating the veins deeply in the iliac fossa with the finger, is attended with some risk, and a hemorrhage in such a place would be most difficult to control. I do not believe the testicle should be sacrificed, for the reason that, although atrophied and possibly of little functional value, it nevertheless has an important influence on the development of the child. The hernia can certainly be cured without castration, as is shown by our own statistics. In no case has the hernia relapsed.

In the earlier cases in which less care was taken to thoroughly separate the fascia and free the cord high up, retraction of the testis to the region of the external ring was the rule rather than the exception. In the more recent cases it has been found possible, in a greater proportion of cases, to keep the testis in the scrotum.

STRANGULATED HERNIA IN CHILDREN.

This condition is comparatively rare in children, and is most frequent during the first two years of life. I have operated on 13 cases between the ages of 13 days and 14 years. In only 2 cases did strangulation occur between the ages of 2 and 14. This series of cases helps to settle an important and much-disputed point in the etiology of strangulation in children. The earlier statistics stated that the neck of the sac caused the strangulation in most cases. In every one of my own cases the strangulation was due to the tense fascia of the external ring, and not to the neck of the sac, which, in children, is always a thin and easily distensible membrane, incapable of producing strangulation. The error of the older statistics is probably due to the fact that operation in these cases consisted in merely relieving the strangulation by cutting all the tense tissues, including the sac at the same time. Hence the particular tissue causing the strangulation was not recognized. In our own cases the operation is precisely the same as that employed for the radical cure of non-strangulated cases, the skin incision being made beginning on a level with the anterior superior spine, and there has never been any difficulty about the reduction of the strangulated loop of bowel as soon as the tense fascia of the external ring has been severed.

In the 12 cases of strangulation there was one death, in a child six weeks old, the hernia having been strangulated for three days, and the child practically moribund at the time of operation.

RESULTS AS REGARDS PRIMARY WOUND HEALING.

Prior to 1897, when rubber gloves were not used, primary wound healing was observed in 96 per cent. of the cases; since the introduction of rubber gloves, it was noted in 99 per cent., which proves beyond any question that it is possible to obtain a sterile absorbable suture. Furthermore, the fact that the final results in 775 Bassini operations in children showed but three relapses, proves quite as conclusively that the tendon sutures remain unabsorbed sufficiently long to effect a permanent cure. The disadvantages of using buried nonabsorbable sutures in the hernial canal I have pointed out so frequently that I will merely allude to them here.

In a certain number of cases they lead to the formation of a sinus, which usually persists for weeks or months, until the offending suture is removed, but the worst feature is the weakening of the canal by the suppuration, leading in most cases to relapse. A large number of such cases have been observed at the Hospital for Ruptured and Crippled, showing that these objections are not merely theoretical, but very practical.

FINAL RESULTS OF OPERATIVE TREATMENT.

Between August, 1891, and July, 1904, I have performed 825 operations for the radical cure of hernia in children under the age of 14 years with one death, due to ether pneumonia. Four operations were for umbilical hernia; four for ventral; two for epigastric; 25 for femoral; thus making 815 cases for the radical cure of inguinal and femoral hernia in children; or 790 operations for inguinal hernia. In 15 of these the cord was not transplanted, leaving 775 cases in which Bassini's method, with the substitution of chromicized kangaroo tendon for the buried sutures, was performed. In this series of 775 operations but 3 relapses were observed; in the 15 in which the cord was not transplanted, 5 relapses were noted.

In a total of 1,330 operations for the radical cure of inguinal and femoral hernia, including adults, only two deaths occurred, and 12 relapses.

In the 25 cases of femoral hernia in children, there has not been a single relapse. Sixteen were examined and found perfectly sound from 3 to 8 years after operation; 5 from 1 to 2 years; four cases were not traced beyond six months.

The utmost effort has been made to trace these cases to final results, and comparatively few have been lost sight of. In my paper read before the American Surgical Association[3] a year ago, the end results of 1,003 cases were given in more detail. Six hundred and fifty of these cases (including adults) were examined and found perfectly sound from 1 to 11 years after operation.

The method of operation for femoral hernia in children has been in every case the "purse-string suture," with kangaroo tendon.

The technic, as I have performed the operation, in brief is, first, to thoroughly free the sac well beyond the neck; high ligation of the sac and closure of the canal by means of a purse-string suture of chromicized kangaroo tendon. The suture is introduced through Poupart's *ligament or the inner portion of the roof of the* canal, or crural arch, from where it passes downward into the pectineal muscle or floor of the canal, outward through the fascia lata overlying the femoral vein, and upward through Poupart's ligament or roof of the canal, emerging about three-fourths of an inch from the point of introduction. On tying the suture, the floor of the canal is brought into apposition with the roof, and the femoral opening is completely obliterated. The superficial fascia may then be closed with catgut or fine tendon, and the skin either with catgut or silk.

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[3] Transactions of the Am. Surg. Association, 1903; Annals of Surgery, June, 1903.

This method I believe superior to Bassini's operation for femoral hernia, and of 82 operations for femoral hernia done within the last 14 years, 66 were performed by this method, without a single relapse; in 16 cases operated on by Bassini's method, there was one relapse.

RELAPSES AFTER BASSINI'S OPERATION FOR INGUINAL HERNIA IN CHILDREN.

1. J. K., male, aged 6½. Bassini's operation, substituting kangaroo tendon for silk in the buried sutures, done in October, 1894. Primary wound healing. Slight relapse one year later.
2. J. W., male, aged 9. Operated on by Bassini's method in August, 1894. Slight relapse two years later. Truss applied for a time; then left off. Examination in 1903, nine years later, showed only a slight impulse on coughing.
3. B. B., aged 6. Right inguinal hernia. Operated on June 12, 1903. Wound healed by primary union. On July 15 the patient had a severe attack of whooping cough, during which time he applied no support to the recently healed wound of the inguinal canal. A recurrence was noticed on August 8.

RELAPSES IN CASES IN WHICH THE CORD WAS NOT TRANSPLANTED

1. H. O., aged 8. Operation Dec. 12, 1901. Cord not transplanted. Relapse three months after operation.
2. C. R., aged 13. Very large right inguinal hernia. Operation Dec. 28, 1891. Cord not transplanted. Silk used for the deep buried sutures. Wound suppurated and most of the deep sutures came out. Relapse within three months after operation.
3. B. S., aged 12. Right inguinal hernia. Operation January, 1892. Cord not transplanted. Silk used for the buried sutures. The wound healed by primary union, but a few weeks later a sinus formed and a few silk sutures were extruded. Relapse followed a few months later. Patient was re-operated on by Bassini's method, and was entirely well ten years after.
4. F. H., aged 10. Operation February, 1892. Cord not transplanted. Chromicized catgut for buried sutures. Patient remained well for three years, when a slight relapse occurred.
5. E. B., aged 6. Operation February, 1901. Cord not transplanted. Sliding cecal hernia. Relapse three months after operation.

REMARKS.

A closer study of these relapses is of some interest. In four of the five relapses following operation without transplantation of the cord, operation was performed in 1891-2, or more than twelve years ago. In two of these cases silk was used for the buried sutures, with subsequent sinus formation which weakened the canal and was, undoubtedly, an important factor in causing the relapse. In the fifth case which relapsed after operation in 1901, we had to deal with a sliding cecal hernia, a form of rupture the radical cure of which is acknowledged to be almost impossible to obtain with any method of operation. Five relapses in a series of twelve cases in which the cord was not transplanted is certainly a high percentage.

Coming to the cases operated on by Bassini's method with the substitution of kangaroo tendon for silk, in the buried sutures, we have 775 cases with three relapses. Two of these relapses were very slight; one of them showing only a moderate impulse on coughing nine years after operation. The third was due to a severe attack of whooping cough coming on four weeks after operation.

This series of cases, I think, conclusively proves that the risk of operation for the radical cure of hernia in children is exceedingly small and the chance of securing a permanent cure almost certain.

DISCUSSION.

Dr. David E. English, Millburn, N. J., stated that some years ago he emphasized the fact that in the treatment of this form of hernia a proper kind of pad must be used and that anything in the shape of a button that was pointed or round on the surface next to the skin would rather defeat the purpose for which it was placed there. Since reading that paper he has used a silver quarter, properly padded, and his results have been very good.

Dr. Arthur L. Fisk, New York City, agreed with Dr. Coley that it is not wise to operate on such young infants unless the conditions demand it.

Dr. Rosa Engelmann, Chicago, asked Dr. Coley how he prevents excoriation of the skin in connection with his applications for the treatment of ventral hernia. Recently Dr. Engelmann has been using the oxid of zinc plaster, and still has been unable to prevent excoriation of the skin.

Dr. W. B. Coley, in reply to questions, said that the character of the pad in ventral and umbilical herniæ is of considerable importance. The side in contact with the skin should be slightly convex instead of concave, and should be considerably larger than the hernial ring, since otherwise it will sink into the ring. A certain amount of excoriation will be produced by any kind of plaster if it is allowed to remain on for any length of time, but zinc oxid has been found to cause far less trouble than the ordinary plaster. It should always be changed within a week or ten days, and strict cleanliness should be observed. Dr. Coley agreed with Dr. Fisk that it is not wise to operate on very young infants, although there is a great tendency, particularly in France and Germany, to operate on infants even a few months old. The fact that so many of these cases can be cured by the use of a truss and, furthermore, that the danger of strangulation in infants is not great, are ample reasons for deferring operation.

THE SCHOTT METHOD OF TREATING DISEASES OF THE HEART AND BLOOD VESSELS.*

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PHILADELPHIA.

It may appear rather late in the day either to present the claims of the Schott methods of treating chronic cardio-vascular diseases or to discuss the details connected with their application. It should ever be a feature of our therapeutic creed, however, to give close attention to physiologic means and to recognize their superiority over drugs as curative agencies. No one who views the immense concourse of persons pouring into Bad Nauheim from every part of the globe and notes the conditions presented by a small fragment even, as I have done, can fail to be impressed with the fact that confusion obviously reigns in the minds of a large proportion of the medical profession as to what constitutes a suitable case for this recognized mode of treatment. The same vagueness and indefiniteness of professional thought and action holds true at home, perhaps in greater degree than abroad, more especially in England, Germany and Russia—countries in which much attention has been paid to the subject. These facts furnish the *raison d'être* for attempting to extend a knowledge of the subject among the members of the profession of America, on whom it unquestionably has strong claims. On the other hand, the Schott method of treating chronic cardiac diseases has not been as universally appreciated as it deserves. A transference of the point of view to an actual observance of the workings of the *kur* furnishes a clearer vision and serves to emphasize both its efficacy and the vastness of its sphere of usefulness.

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* Read at a meeting of the Philadelphia County Medical Society, 1904.

Of the numerous health resorts that have risen to fame in recent times, unquestionably Bad Nauheim heads the list, but its claims to public favor are not solely ascribable to the virtues of its healing waters as some contend, great as is the value of this expedient, but, as will be shown hereafter, the "resistance exercises," which enter into the method of treatment herein described, form an element of almost equal therapeutic importance. Considerable attention is also bestowed on the patients' dietary and hours for sleep and recumbency. Again, Nauheim has certain outside recommendations, and commands an attractive and restful environment. Beautifully embowered in a pretty park, lying near the foot of the Tannus mountain, are the commodious, cheerful and modern bath-houses (*bäder*), while the springs, or underground streams, that supply them "without hurry and without rest," gracefully yield their healing waters from the great repositories of Nature. Around this fairly extensive and pretty park cluster numerous stately villas, hotels, and, in the loftiest part stands prominently the handsome "kurhaus," on the terrace of which there are daily concerts by an orchestra, and theatrical performances in the evening, the amusements offered being in keeping with the nature of a serious health resort.

One need not renounce modern comfort at Bad Nauheim. I gained the impression, however, that the healthy public might find this resort dull, since conversation constantly involves excursions into the subject of chronic diseases of the heart and their treatment by the special method under consideration. This resort possesses certain minor climatic advantages; it is situated on the edge of a plateau (the Wetterau) at an elevation of 450 feet above the level of the sea, and the nights are always cool, owing to the nearness of the Johannisburg and the Woodland. There are also long, wide avenues with their cooling shade. Again, the sanitary arrangements are quite good.

In attempting to present the claims of the Schott methods of treatment of chronic cardiac diseases, as conducted at Nauheim, I am not unmindful of the existence of the excellent monograph of Bezly Thorne[1] and the papers published on the subject by Camac,[2] Tyson,[3] Baldwin[4] and others. These writers have given a creditable estimate of its advantages and have fully presented the details of its application, but they have scarcely formulated the whole truth in the premises. Moreover, the skeptically minded is among us; he who ascribes the *rationale* of the phenomenal results achieved to the good effects of rest and a peculiarly attractive environment. Granted that a salubrious environment shares in the production of the beneficial effects, the principal and most influential factors to the attentive and practiced observer are unquestionably the systematic and methodic use of the saline baths and the "resistance movements."

Time and space forbid a full descriptive account of the baths and their constituents in this place. The springs are known both by names and numbers, but the former alone will best serve the purposes of this article.

The bath waters contain from 2 to 3 per cent. of sodium chlorid, from 2 to 3 per 1,000 of calcium chlorid, various forms of iron, and above all, a large amount of carbonic dioxid (Schott).[5] A course of baths embraces the use of waters of various strengths, ranging from the milder to the more potent with the progress of the cure, and the duration of the period of immersion is also variable. At the beginning, the waters of the so-called thermal baths are employed; they are freed to a certain extent from their natural gas. These are succeeded by the thermal-sprudel baths, then pure sprudel and, finally, in a certain proportion of the cases, the so-called strom-sprudel. The baths intermediary between the thermal and effervescing (sprudel) are supplied from storage tanks. To render the baths more stimulating, so-called *"mutterlauge,"* which is the refuse of the salt manufactory in the neighborhood, is added in carefully increasing quantity in certain cases. The flowing sprudel (strom-sprudel) baths, which possess the greatest balneologic strength known, are most efficacious when judiciously and wisely employed. Here the waters of the principal springs forcibly enter, pass through and leave the bathtub during the period of immersion; it is the "bath of champagne."

It can be readily shown that the Nauheim waters offer more than simple saline baths, seeing that they contain carbon dioxid in solution and are also strongly ferruginous. Furthermore, the amount of carbon dioxid is far greater than that contained in any other bath on the continent. The physiologic effects of the mineral baths are at present writing fairly well understood, although at an earlier period of time they were used empirically as a remedy in rheumatism and later in chronic cardiac diseases. The baths exert a beneficial influence in various directions in cardiac insufficiency and prominent among the salient results are a more vigorous systole with diminution in the size of the dilated heart and a reduction of the pulse rate. The diminution in the size of the heart is readily established both by percussion and the use of the x-rays.[6]

Of equal importance is the influence exerted on the blood paths, by means of which there is accomplished an arteriodilatation and a transfer of the abnormally large increment of venous blood to the arterial side of the circulation. The blood pressure, as shown by Prof. T. Schott,[7] is generally raised, but when it is too low at the start, this effect is not observed.

It is especially noteworthy that in consequence of a freer coronary circulation the impaired nutrition of the myocardium is correspondingly benefited. The labor of the overburdened heart is greatly diminished and its recuperation to a like extent assisted. Indeed, as the result of personal observation, I am enabled to affirm that all the usual evidences of an impaired circulation presented by the different organs (lungs, liver, stomach, kidneys), as well as the anasarca, disappear as the heart's capacity for physiologic work augments under the influence of balneologic therapy.

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[1] The Schott Methods of the Treatment of Chronic Diseases of the Heart, fourth edition, 1902.

[2] THE JOURNAL, Aug. 28, 1897.

[3] Univ. Med. Mag., July, 1897.

[4] Med. Record, Feb. 13, 1904.

[5] Prof. T. Schott: Med. Record, March 26, 1898.

[6] Med. Record, June 29, 1901.

[7] Among the most valuable early papers on the effects of the baths on the heart was that of A. Schott, published in 1880.

This effect on the circulatory system is not due to a direct action of the baths, but an indirect one through irritation of the cutaneous sensory nerve filaments, the stimulation being conveyed to the vasomotor, cardiac and other nerve centers, and producing an effect on the organic functions and general nutritive processes.

Beneke directed forcible attention to the striking improvement in comparison and even complete recuperation of enfeebled heart action in old valvular lesions, in gout and rheumatism, complicated with heart disease, as the result of *judicious employment* of the Nauheim springs. In 1882, the Brothers Schott began an exhaustive series of experiments on the effects of immersion in saline solutions on the blood pressure of lower animals. These experiments, together with those of Beneke and Jacob of Cudowa, place the fact beyond controversy that saline baths exert a marked influence on the blood pressure. Further, the "resistance movements," which are employed concurrently with the baths, were first introduced and elaborated by the Brothers Schott.

In this connection too much stress can not be placed on the rôle played by the nervous system in bringing about the curative effects of this special method of treatment. Thorne wisely argues that a certain amount of stored energy (available for response to the various stimuli which may be brought to bear on it) is necessary to a successful application of the therapeutic baths and "resistance exercises." It therefore requires an orderly method and sound judgment to decide whether or not the Schott methods are applicable to the given case, more especially if the patient is suffering from an advanced valvular lesion or myocardial degeneration.

The object of the "resistance exercises," which constitute the second essential portion of the Schott method, is to throw into activity different groups of muscles, more especially those of the extremities, "in orderly succession without inducing fatigue." The movements exert a marked influence on the circulation, both lesser and systemic. Indeed, *they do not belong to the domain* of "gymnastics," since they exercise their principal therapeutic effect over the cardiovascular system rather than over the muscular system. There has been considerable controversy over the *rationale* of the "resistance movements." Unquestionably they bring muscles that are *for the greater part inactive* under usual conditions, into normal functional activity; they stimulate the peripheral motor nerves, while the baths, it will be recollected, act on the sensory nerve filaments, and finally, they exert a tonic effect on the myocardium. The movements also *tend to drive the venous blood to the right side of* the heart, by compression of the veins (Broadbent).

This element of the treatment must be carried out by a specially trained operator, who carefully observes certain details in connection with its application. These rules are well summarized by Thorne as follows:

1. *Each movement is to* be performed slowly and evenly, that is, at a uniform rate. 2. No movement is to be repeated twice in succession in the same limb or group of muscles. 3. Each single or combined movement is to be followed by an interval of rest. 4. The movements are not to be *allowed to accelerate* the patient's breathing, and the operator must watch the face for the slightest indications of (*a*) dilation of the alæ nasi, (*b*) drawing of the corners of the mouth, (*c*) duskiness or pallor of the cheeks and lips, (*d*) yawning, (*e*) sweating, and (*f*) palpitation. 5. The appearance of either of the above signs of distress should be the signal for immediately interrupting the movement in process of execution, and for either supporting the limb which is being moved, or allowing it to subside into a state of rest. 6. The patient must be directed to breathe regularly and uninterruptedly, and should he find any difficulty in doing so, he must be instructed to continue counting, in a whisper, during the progress of each movement. 7. No limb or portion of the body of the patient is to be so constricted as to compress the vessels and check the flow of blood.

Every *movement is designed to achieve* a practical result on physiologic principles. The patient's condition and endurance must be the criterion as regards the number and character of the movements to be employed. In all cases, therefore, the physician must carefully instruct the operator; not only so, but he should *supervise the administration of the "resistance movements"* until convinced that they are being properly executed. It is not less important for the medical attendant to note the effects of the movements, for while, as a rule, the circulatory organs, and to a lesser extent the muscles and respiration, are strengthened and invigorated, yet an imperative need for a modification of the method may be presented. The movements employed are accurately and individually described by Bezly Thorne, and the reader may be referred to his excellent work for further details.

Much in this position might be said to further elucidate the physiologic conditions involved in the more or less co-ordinate action of the two main elements of the Schott method, to-wit: saline baths and "resistance movements," but this course would require more lines than these to which I am limited. After all, it is through its marvelous effects that it makes the strongest appeal to the judgment of an unprejudiced observer. It is well known how unsatisfactorily and incompletely disturbances of compensation in the course of chronic valvular lesions yield to medicinal measures, rest and regulation of the diet at home, both in private and hospital practice; also that, almost with certainty, progressive myocardial degeneration advances, leading sooner or later to a fatal degree of dilatation under similar treatment.

On the other hand, I have recently witnessed the application of the method under consideration in chronic valvulitis and various other conditions at Nauheim, and convincing clinical evidence was afforded of its remarkably beneficial and curative effects in a variety of cardiovascular degenerations. Speaking generally, it seemed to me that the improvement, in the vascular changes, as shown by the increased lumen of the vessels and volume of the pulse, was quite as striking as that produced on the myocardial changes. And the yielding of cases of angina pectoris within a comparatively *brief period* of time would lend support to the assumption that many examples of this grave disorder are most probably dependent on abnormal vasomotor influence.

There was, however, brought to my attention clear evidence of the beneficial effects of the *method in vascular degenerations* of well-marked degree. The great advantages of the baths and exercises in these cases, as well as in myocardial changes, serve to emphasize their potency in stimulating or favorably influencing bodily metabolism. This statement granted, and *it becomes* needless to point out that the methods are applicable to a wide range of varying conditions other than cardiac.

I shall now choose a few illustrations from among a large number of different forms of cardiac and non-cardiac conditions which, by the courtesy of Prof. T. Schott, I had an opportunity of observing during the bathing course.

Case 1.—Mr. A. C., aged 28 years, married; occupation, auctioneer; height, 5 feet 11 inches; weight, 151 pounds (in clothes); no heart lesions in any member of his family; neither gout nor rheumatism furnished by the family history.

History.—Patient had had childish diseases; at 12 he suffered from rheumatic fever of a severe type, but no heart complications arose, so far as the patient's knowledge extends; he had been considered a good risk by life insurance companies up to 4 years ago. At 22 he contracted syphilis, for which he was vigorously treated, and neither secondary nor tertiary manifestations put in an appearance. Within the last 5 years he has had two mild attacks of influenza. The social history does not furnish many points, although the patient formerly smoked an average of from 8 to 10 cigarettes daily, and used from 3 to 4 drinks of whisky and soda in the same period.

Present Illness.—The present illness began 3 years ago while playing hard at polo, when he developed pain in the region of the heart, to relieve which a hypodermic injection of morphin was employed. Subsequently, he continued well for 18 months, with the exception of dyspnea on muscular exercise. One year ago he began to suffer from vertigo at intervals; his physician said the heart was enlarged on the left side. Artificial Nauheim baths were employed at the suggestion of Dr. Thorne. On July 4 the patient went to Nauheim; this was just 3 weeks before he fell under my personal observation. On arrival, vertigo recurred several times daily, dyspnea was marked and sharp pains through the heart were complained of; the bodily surface was everywhere cold to the touch. After 3 weeks' treatment, or at the time I first examined the patient, the vertigo had disappeared and dyspnea greatly lessened. He could now walk a distance of several squares, whereas he was unable to walk unaided at the time of his arrival at the springs.

Physical Signs.—August 1: Heart much dilated, to the left it extends to anterior axillary line, to the right to a point near the right edge of the sternum; the impulse is feeble and a slight presystolic-systolic thrill is detectable at the apex. The area of percussion dullness corresponds with the impulse, and on auscultation a faint presystolic-systolic murmur is audible at the apex. Some distance above, and near the left edge of the sternum, a pure diastolic murmur is heard; it is soft and blowing.

August 17: A second physical examination shows the border line of cardiac dullness on the left to correspond to vertical nipple line, and the right boundary falls ¼ inch to the left of the midsternal line. The murmur at the apex is not audible, although the second pulmonic sound is accentuated; the diastolic murmur is still heard. The heart sounds in general are much stronger than at the previous examination. The patient now indulges in long walks without noticeable dyspnea and denies any discomfort.

The case reported above was regarded primarily as one of acute dilatation; and although complete relief has been accomplished, the patient is urged by his attending physician, Prof. T. Schott, to return one year hence, meanwhile being allowed to resume his usual vocation.

Case 2.—W. A. M., aged 54 years; occupation, physician (lieutenant-colonel in the Indian medical service for 10 years); nothing hereditary in the family.

History.—Patient had had childish diseases, and syphilis at 20, attended with slight secondary manifestations only. Twelve years ago he had an attack of influenza and has not been in his usual health since. The patient had been a hard polo player for years, and also an excessive user of tobacco prior to the discovery of the heart lesions.

Present Illness.—In 1903 he had cold extremities and dyspnea on muscular exercise; Dr. Sansom diagnosticated mitral regurgitation with marked dilatation and instability of action.

Sept. 1, 1903: Patient commenced a course of treatment at Nauheim lasting 5 weeks; his condition was remarkably improved thereby, although sleepless and nervous for a time.

July 1, 1904: Symptoms returned to a moderate extent, and at once the patient proceeded to Nauheim. His condition was much less pronounced than in the previous year, and after a bathing course, lasting one month, I was privileged to examine him. There was present very slight dilatation of both ventricles; the increase in the transverse diameter of the heart being about ½ inch above the normal. The mitral systolic murmur was scarcely audible and the systole apparently normal; at intervals there was slight palpitation; it was not so apt to be induced by exercise as by nervous excitement, as on awakening or playing at a game of whist. The patient now indulged in long walks, even over mountain sides; this he could not do before the Schott method of treatment had been adopted.

It was supposed by his physician, Dr. Sansom, that the severe exercise and excessive use of tobacco had been the cause of the marked disturbance of compensation and induced secondary dilatation. It would appear from this and the previous case that the Schott methods are especially serviceable in the advanced stages of cases of rapidly developed dilatation. In confirmation of this position, I may state that Professor Schott related numerous cases of a similar character.

Case 3.—R. H., aged 38 years, single; occupation, practicing physician in New York City; height, 5 feet 7 inches; weight, 172 pounds (stripped). The family history is negative, except that his mother, who is living, has been afflicted with rheumatoid arthritis for 10 years, but only in the hands.

Previous History.—Absence of all childish diseases. While a medical student he had intussusception, which cured itself spontaneously. In 1896 he had typhoid fever, lasting about 6 weeks; this attack was of medium severity, but recovery quite slow. Two years later (meanwhile working), he noticed severe attacks of palpitation and dyspnea, and was easily fatigued, compelling him to curtail his work. During and after the attack of typhoid, he had attacks of hemicrania, now on one, then on the other side, and nausea always and vomiting sometimes occurred during the attacks of migraine. For these headaches he used migrainin, phenacetin and other coal-tar products, but soon gave them up, having been told that his heart action was weak. For two years he has used strychnin (gr. 1/30 t. i. d.) irregularly, and he has also tried potassium iodid, which, however, disagreed with him, and hence was discontinued. The patient had been a moderate smoker and had used beer and wine, but never immoderately. He paid little or no attention to diet and systemic exercise.

Present Illness.—The present illness began 4 years ago, the symptoms being dyspnea on exertion, cardiac palpitation and thoracic oppression. Two years ago he had a serious collapse in a patient's house, probably a syncopal attack due to myocardial weakness. He took a few doses of the fluid extract of digitalis. At the end of 36 hours he had recuperated; he then avoided overexertion and excitement, but in July, 1903, had a second attack, though less severe, and was unable to work for an entire day. The third and last seizure occurred on June 24, 1904. This case began with severe vertigo, followed by complete unconsciousness. The local symptoms (palpitation, dyspnea and oppression) have become more severe for 2 years. Since the last attack of syncope he has been troubled with flatulence, small appetite and increasing weakness. During the past year he has also had rheumatic pains in joints and muscles at intervals, but they never lasted more than 24 hours.

Physical Examination.—August 5: Impulse diffuse, wavy and exceedingly feeble, both on inspection and palpation; no thrill detectable on palpation; percussion showed the area of cardiac dullness to be greatly increased in the transverse diameter, to the left to anterior axillary line, to the right to a point ½ inch beyond the right sternal edge. On auscultation, a systolic apical murmur was heard, and the second pulmonary sound was somewhat accentuated. He began a bathing course and 2 days later the "resistance exercises" were also introduced.

August 11: The left border of the heart is now at vertical nipple line, the right at midsternum.

August 27: Impulse much stronger and apex about in normal position; left boundary line of dullness is at left vertical nipple line, while the right has moved to a point ½ inch to the left of the midsternal line; heart sounds only moderately strong, but no murmurs detectable; neither is there any appreciable arrhythmia present.

Before inaugurating treatment in this case, Prof. T. Schott gave me a remarkable demonstration of the effects of the "resistance exercises" on the dimensions of the heart. The patient was allowed to rest for forty-five minutes, when mild "resistance movements" were instituted; at the end of seven minutes the pulse had fallen from 84 to 72 a minute, while both the volume and tension had increased. After eighteen minutes of the exercises, I noted their effect on the dimensions of the heart. It will be conceded that the movements properly conducted cause a distinctly marked and decided shrinkage in the size of the heart chambers. Obviously, this reduction in size was not maintained, although persistence in the use of the exercises and baths brought about the result stated above. (Fig. 1.)

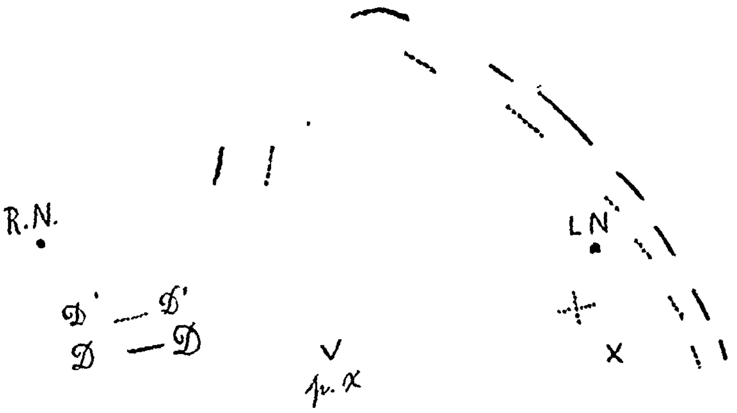

Fig. 1.—The straight lines indicate the outline of the heart: D—D, diaphragm, and X the apex beat before the exercises with resistance. The dotted line indicates the size of the heart, D'—D', the diaphragm, and the dotted *cross* the apex beat after 18-minute exercises with resistance. R. N., right nipple; L. N., left nipple.

Case 4.—A. D., aged 35, male, Russian by birth; merchant, with rather arduous duties.

History.—Childish diseases: Acute articular rheumatism at 13, complicated with endocarditis. The patient was taken to Nauheim. Professor Schott found the heart enlarged 3 cm. to the right and 2½ cm. to the left; auscultation revealed a mitral regurgitant murmur. The patient took a bathing course for 7 years in succession and was considered to be cured. Fourteen years later, he injudiciously bathed in a stream of very cold water, whereon he developed an acute articular rheumatism, from which he partially recovered as the result of treatment at home. Shortly after, or one year ago, he was again brought to Nauheim, with traces of subacute rheumatism. A single bathing course resulted in apparent cure.

Examination.—He returned this season without rheumatism, and at the end of his course of treatment I was requested to make a physical examination. The heart was found somewhat hypertrophied; the left boundary line of dullness corresponded to vertical nipple line and the right to vertical midsternal line; the impulse was vigorous and regular, and on auscultation a faint systolic murmur was detectable at the apex. The patient feels himself to be in excellent condition and indulges freely in physical exercise without fatigue. The general appearance also indicates good health. This excellent result was accomplished without the use of any medicines.

It is not claimed by the most ardent advocates of the virtues of this method that chronic valvulitis is, as a rule, curable, although a few well-authenticated cases have been recorded. On the other hand, as a means of bringing about compensation, either in simple dilatation or in that form associated with chronic valvulitis (e. g., Case 4), it possesses advantages which meet the requirements more fully and satisfactorily by far than any other known form of treatment.

It is a point of common knowledge that many patients in whom digitalis has lost its therapeutic influence come to Nauheim, and after a few baths this drug takes hold. The following is a case in point:

Case 5.—Mrs. A. H., native of Russia, aged 56; height, 5 feet 2 inches; weight, 180 pounds; father was corpulent and died suddenly at 58 years, cause unknown; all other members of the family also stout.

History.—Patient had had childish diseases, and at 36 had an attack of acute articular rheumatism following childbirth and lasting about 3 months; there was a chest complication, the precise nature of which, however, is unknown. The patient has 6 children, all in good health. Menopause occurred 5 years ago.

Present Illness.—The present illness began at that time with swelling of ankles and distress of breathing on muscular exercise. The attending physician found a heart lesion and sent the patient to Dr. Schott, who discovered a greatly dilated heart with associated cyanosis, urgent dyspnea and marked edema of the legs. The diagnosis of aortic stenosis and mitral regurgitation with secondary relative tricuspid regurgitation was made. The patient had taken digitalis, at first with marked benefit, but later without beneficial effect prior to coming to Nauheim. After a course of baths, a smaller dose than had previously been employed seemed to exercise a happy influence. The patient has been returning annually to Nauheim and each new season has found her improved. Patient is now comfortable, even after exercise, and has not required any digitalis or other cardiac stimulant during the past year.

Case 6.—General W., Englishman, aged 71, with a negative family history, although father died at 67 years, "an old man." On the whole, the family is not long-lived.

History.—Patient spent 7 years in Indian service; has never been rheumatic, but gouty at intervals, and has just recovered from an attack of lumbago. He has never paid any attention to diet, but has exercised considerably; he has been a moderate indulger in intoxicants and tobacco.

Present Illness.—He first came to Nauheim 6 years ago, and has returned each year since then; his condition at first was marked weakness, with great distress of breathing on exertion; his legs felt like lead and he could only walk a few steps when his head would reel and his sight fail. The heart action was excessively weak, with an occasional intermittence, but no murmurs were present. Each bathing course of 6 weeks brought about a decided gain from year to year, so that at present he can walk briskly for long distances. Occasionally, at night, the patient experiences a "thump," followed by a brief stop in the heart action.

Aug. 18, 1904, or at the end of the last course of treatment, I was permitted to make a physical examination. The heart was found to be of normal outline; the impulse was rather feeble, but regular, and no murmurs could be detected; the first sound was also clear with, however, some accentuation of the second aortic. The peripheral vessels are but slightly sclerosed to the touch.

The combined bath treatment and "resistant exercises" has rejuvenated this man beyond question. Without stopping to detail other similar cases, it may be stated that in no class of affections did the Schott method appear to exert more salutary effects than in moderate degrees of arteriosclerosis with embarrassment of the heart action. I observed several additional instances in which from a course of baths and exercises marked relief was afforded. The explanation is not far to seek; the lumen of the arteries, both larger and smaller, is widened, and thus the heart relieved and given an opportunity to rehabilitate itself. Whether the baths and exercises affect principally the vasomotor nervous apparatus or increase the arteriocapillary capacity in an indirect manner by favorably influencing metabolism, I can not venture to state at present writing.

Closely connected with this class of cases are those in which the atheromatous changes involve especially the coronaries and lead to the development of angina pectoris. It was my good fortune to be privileged to examine several cases of the sort and to note the results of treatment. The special effect of the Schott method was most gratifying and scarcely less than magical in many cases at least. I regret that the limits of this article will permit of my giving but a few illustrations.

CASE 7.—M. M. S., sent from San Francisco; male, aged 48; German; occupation, cigar manufacturer and wine agent; height, 5 feet 9 inches; weight, 160 pounds. Father died of chronic Bright's disease, and mother of pneumonia; all brothers and sisters, 8 in number, living and in good health.

History.—Patient had had childish diseases, after which he remained well until the age of 44, when he developed subacute articular rheumatism, lasting a couple of months; he had a recurrence the following winter, and he was cured by Kreutznoch baths. In previous years he indulged freely in beer and wine, and also smoked 10 cigars daily, on the average.

Present Illness.—Present illness began suddenly 2 years ago with numbness of arms, quickly followed by severe pain behind the sternum, which radiated to the neck and arms, especially the left; associated symptoms were cold sweats, inability to breathe, syncope and dizziness. The attacks lasted from 1 to 3 minutes and recurred from 2 to 3 times a week while engaged at work, but not so often when at rest. After two unusually severe attacks, he came to Bad Nauheim, June 14, 1904. He took 30 baths prior to July 20 (9 thermal, 10 thermal-sprudel, and 11 sprudel). From the commencement of the bathing course he experienced no pain, but felt somewhat weak and nervous for a couple of weeks, after which he felt quite strong. On July 20 he went to an "after *kur*," and remained 18 days; he returned to Nauheim feeling well, but was advised to take a brief bathing course.

August 23: He declares himself perfectly well, experiences no discomfort on walking briskly, whereas when he arrived at Nauheim walking invariably induced dyspnea and sometimes pain. Physical signs show slight dilatation in the transverse diameter, and the presence of an apical systolic murmur with accentuation of secondary pulmonary sound; there is no arrhythmia.

CASE 8.—A. A. P., Russian, aged 60; occupation, official judge; with negative family history.

History.—After child's diseases he continued well until 10 years ago, when he had influenza. He has never used either alcoholic intoxicants or tobacco; neither has he paid any special attention to diet or exercise.

Present Illness.—The present illness dates from one year ago and began with pain in the left parasternal region and radiated to arms. The primary attack was severe and lasted but a few minutes. Subsequently he experienced dyspnea on exertion, and during the following year he had three additional paroxysms of great severity. June 1, 1904, he came to Nauheim in an extremely weak condition, with hardened arteries, and the slightest attempt at exercise induced pain. He began treatment.

Aug. 23, 1904, a physical examination which I was permitted by Professor Schott to make, showed a moderate degree of right ventricle hypertrophy, while the left was practically normal; no murmurs detectable on auscultation; radials were palpable and the pulse small and irregular. He still has pain in the region of the heart on active exercise, but not true angina, and the arrhythmia, which had been present from the beginning of his illness, was now absent. The condition is greatly improved; treatment to be continued at intervals.

CASE 9.—A. K., American, aged 65, bishop; height 5 feet 8½ inches; weight, 185 pounds. Father died at 72 of stenosis of the esophagus, and mother at 55 of an aneurism; otherwise family history is negative.

History.—Escaped most childish diseases, although in delicate health all his life; at 23 he developed congestion of the lungs; for 25 years he has felt rheumatic pains in his knees and elbows; he is also troubled with nervous indigestion and attacks of troublesome diarrhea during the same period. Eight years ago he had an attack of acute rheumatism, affecting principally the left shoulder, with considerable fever, lasting one week; a heart complication developed, from which he apparently recovered.

Present Illness.—He continued well until 4 years ago, when he discovered by accident a heart lesion with dilatation. Prior to that time he had occasional vertigo, palpitation and appreciable irregularity of the heart action. Patient never smoked nor used intoxicants; had lived simply and eaten plainly, and had taken much walking exercise. For 5 years previous to being treated after the Schott method at Nauheim, he had suffered from angina pectoris of moderate intensity; the attacks especially excited from muscular exercise, and, to a lesser extent, also mental excitants. He has visited Professor Schott at Nauheim each summer for 6 years. From the first bathing course, combined with muscular exercises, the condition improved, and during the past two years he has not experienced any pain whatsoever. Patient finds that at or about the close of each winter season's arduous work he suffers from general weakness, slight dyspnea on walking, and for this reason still continues his annual visits to Nauheim.

Aug. 23, 1904, I made a physical examination and found the heart somewhat enlarged, the left boundary line of cardiac dullness corresponding with the vertical nipple line and the right falling through midsternum. Two murmurs are audible, one diastolic at the base, the other systolic at apex. The diagnosis had been aortic regurgitation with secondary relative mitral incompetency. The action of the heart is regular and pulse moderately strong. During the entire course of treatment, no medicinal measures were employed, while the heart grew steadily smaller in size and the general health better.

Granting that the baths and exercises do more good in their own attractive and restful environment than elsewhere, for example, at home, it will be conceded that such results as recorded above can not be attributed solely to this factor.

In connection with Case 3, reported above, attention was directed to the striking and immediate effects of "resistance exercises" on the size of the heart. I was also permitted, through the courtesy of Professor Schott, to note the results of the first thermal bath on the heart in a case of extreme cardiac dilatation. The notes are as follows:

CASE 10.—P. L. P., aged 31, single, German by birth; occupation, musician; height 5 feet 7 inches; weight, 119 pounds (loss of 30 pounds). The family history reveals that one sister had rheumatism and heart disease combined, and one brother died of tuberculosis.

History.—Patient has had childish diseases; at the age of 8 he had an attack of acute rheumatism, which recurred annually for 6 years. In 1893 he had pneumonia, with good recovery. He formerly indulged freely in beer, but not since the present illness began: had paid no attention to diet or exercise.

Present Illness.—The present illness began in February, 1904, as a bronchial catarrh, with dyspnea on exertion, palpitation of the heart and considerable cough; occasional night sweats and fever at intervals were present. August 23 a physical examination showed a wavy and rapid impulse, but no thrill; percussion dullness extended to midaxillary line on the left, and ½ inch beyond the right sternal edge in the opposite direction, and upward to third interspace; a murmur was heard at the apex with the systole, and at the base (slight) with the diastole; the pulse, after resting for one-half hour before the bath, was 120, small and compressible (pulse resembles that of true tachycardia at times). In the bath the patient seemed nervous, and pulse remained the same; after the bath, and after having rested for five minutes, the pulse was 116, but fuller, stronger and more regular. The physical signs after bath: Impulse seemed somewhat more forcible; the murmurs were slightly accentuated and the area of dullness decidedly lessened. This patient was sent to Nauheim by one of Berlin's foremost clinicians, but was not regarded as a suitable one by Prof. T. Schott. on arrival (Fig. 2).

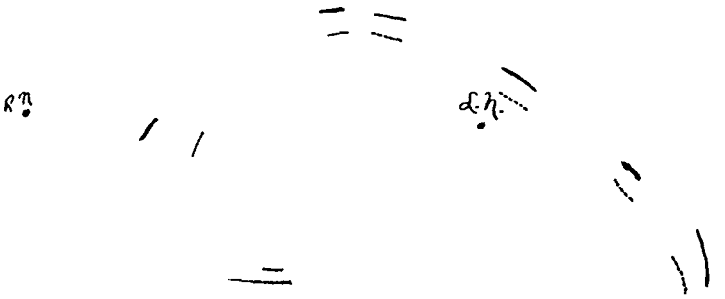

Fig. 2.—Black line, before mild thermal bath. Dotted line, after bath—8 minutes. R. N., right nipple: L. N., left nipple.

The manifest shrinkage in the size of the heart following the first bath, however, is not maintained, as holds true also in the case of the "resistance exercises"; each new bath, however, leaves the organ a little smaller than the previous one, and thus compensation is finally restored, in most cases, at least. It must be well understood that in the treatment of cases in which chronic dilatation less or more is present, the object is not alone to diminish the size of the organ, but to establish a true compensatory hypertrophy. It is to the fulfillment of this end that the Schott methods lend themselves with the most satisfactory results. It is often necessary for the patient to resume baths from year to year in order to accomplish rehabilitation of the cardiovascular forces.

There is a large class of cases, caused principally by an overstrenuous life especially involving severe mental taxation and characterized clinically by neurasthenia, evidences of malassimilation, indigestion and a moderate degree of dilatation of the heart with its usual accompaniments. This group receives striking benefits from a properly regulated bathing course. Great care is necessary in the conduct of this special mode of treatment in this group of cases, since the nervous phenomena are readily aggravated by the irritating effect of the baths on the cutaneous sensory nerves. I was permitted to observe the effects of the Schott method in a number of instances of the sort, all of which were apparently relieved. I may here cite the notes of a case in point:

Case 11.—J. T., aged 49, physician; height, 5 feet 11 inches; weight, 189 pounds. Mother suffered from mitral regurgitation, but later died of erysipelas; father also deceased at 76 years, of pneumonia; rheumatic taint on both sides of the family antecedents.

History.—The previous history furnishes the following data: Childish diseases, chorea at 12, lobar pneumonia at 17, and acute articular rheumatism (lasting 10 days) at 28 years, and a subacute attack, implicating the knees, one year ago. Social history is exceptionally good, so far as his habits are concerned; he also has regulated the diet and taken physical exercise, although not regularly.

Present Illness.—The present illness dates from his forty-third year, when he became nervous and dyspeptic; more recently he has complained of palpitation of the heart, especially on retiring, and of troublesome flatulency on partaking of starches and sweets. He has also been troubled with insomnia and irritability of disposition.

July 29, 1904, a physical examination reveals a pale, moderately well-nourished individual. Apex beat is not visible, but palpable, situated one-half inch to the left of the left vertical nipple line; this is corroborated by percussion on auscultation, the first sound is found to lack vigor and the cardiac rhythm shows great instability. No murmurs, however, are audible and the second sounds are practically normal. The patient was given thermal baths for three days; temperature of bath advised was 32.5° C.; the duration of the first bath was 8 minutes, and the second and third 10 each. A pause of 48 hours was then advised, after which three more thermal baths, to which 1 liter of "*Mutterlauge*" was added, were ordered; this reinforcement to the bath proved too stimulating, hence it was omitted after the second bath; it had caused sleeplessness and a constantly excited action of the heart; the time of these baths was 11, 12 and 12 minutes, respectively, followed by a pause of one day, then thermal-sprudel baths, varying in duration, of 8, 9 and 10 minutes, respectively, were employed. The good effects now began to manifest themselves, and the baths were prolonged to 12 minutes, but omitted every third day. After six thermal-sprudel baths had been taken, sprudel baths of a somewhat lower temperature (31° C.) were advised. On the first day the duration was but 8 minutes, second, 9, and third and fourth days, 10 minutes each; fifth day, 11 minutes, and sixth or last day, 12 minutes. A pause was taken every third day. After three days, "resistance exercises" were also employed, their duration and severity being gradually increased with the progress of the treatment. Patient was then sent to the Tyrol mountains for an "after *kur*." Up to the time he left Nauheim, he was troubled with more or less palpitation and sleeplessness and other nervous phenomena. His heart, however, had returned to its normal dimensions, so far as could be made out by physical signs. At the conclusion of the stay in the mountains, marked and rapid improvement in the condition of the nervous system ensued, and in the course of one month subsequently the patient reported that he was apparently restored to health.

Cases of exophthalmic goiter have yielded completely to the treatment, and I saw one well-marked case after a cure had been effected.

It would appear from my observation that the primary effect of this method of treatment is to provoke an aggravation of the nervous symptoms in some cases, at least, and this may readily be carried too far by the unguarded. Within certain limits, however, this stimulation exercises a salutary influence on the heart's action, the respirations and the systemic circulation of the blood, promoting the warmth of the body and regulating the tissue metabolism to an extraordinary degree. Subsequently, the excitation of the nervous system produced by the baths gradually subsides.

The "after-cure" constitutes a not unimportant element of the treatment. The patient is generally sent to an altitude ranging from 1,000 to 3,000 feet above the sea level, is rigidly isolated from professional, business and domestic cares and responsibilities, and permitted to enjoy an abundance of pure air and sunshine. With reference to altitude, it may be said that the patient's special condition must be carefully considered in reaching a judicious decision. The length of the stay is variable, although on the average about ten days to two weeks.

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Present Illness.—The present illness began in February, 1904, as a bronchial catarrh, with dyspnea on exertion, palpitation of the heart and considerable cough; occasional night sweats and fever at intervals were present. August 23 a physical examination showed a wavy and rapid impulse, but no thrill; percussion dullness extended to midaxillary line on the left, and ½ inch beyond the right sternal edge in the opposite direction, and upward to third interspace; a murmur was heard at the apex with the systole, and at the base (slight) with the diastole; the pulse, after resting for one-half hour before the bath, was 120, small and compressible (pulse resembles that of true tachycardia at times). In the bath the patient seemed nervous, and pulse remained the same; after the bath, and after having rested for five minutes, the pulse was 116, but fuller, stronger and more regular. The physical signs after bath: Impulse seemed somewhat more forcible; the murmurs were slightly accentuated and the area of dullness decidedly lessened. This patient was sent to Nauheim by one of Berlin's foremost clinicians, but was not regarded as a suitable one by Prof. T. Schott. on arrival (Fig. 2).

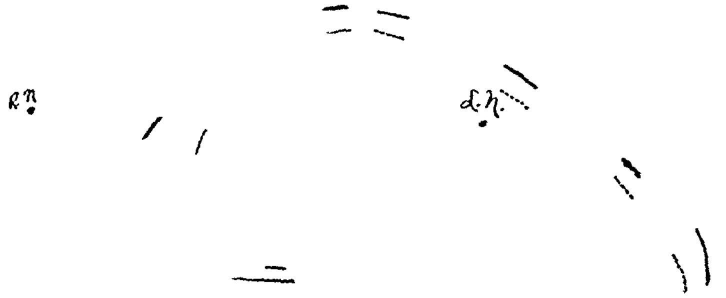

Fig. 2.—Black line, before mild thermal bath. Dotted line, after bath—8 minutes. R. N., right nipple: L. N., left nipple.

The manifest shrinkage in the size of the heart following the first bath, however, is not maintained, as holds true also in the case of the "resistance exercises"; each new bath, however, leaves the organ a little smaller than the previous one, and thus compensation is finally restored, in most cases, at least. It must be well understood that in the treatment of cases in which chronic dilatation less or more is present, the object is not alone to diminish the size of the organ, but to establish a true compensatory hypertrophy. It is to the fulfillment of this end that the Schott methods lend themselves with the most satisfactory results. It is often necessary for the patient to resume baths from year to year in order to accomplish rehabilitation of the cardiovascular forces.

There is a large class of cases, caused principally by an overstrenuous life especially involving severe mental taxation and characterized clinically by neurasthenia, evidences of malassimilation, indigestion and a moderate degree of dilatation of the heart with its usual accompaniments. This group receives striking benefits from a properly regulated bathing course. Great care is necessary in the conduct of this special mode of treatment in this group of cases, since the nervous phenomena are readily aggravated by the irritating effect of the baths on the cutaneous sensory nerves. I was permitted to observe the effects of the Schott method in a number of instances of the sort, all of which were apparently relieved. I may here cite the notes of a case in point:

Case 11.—J. T., aged 49, physician; height, 5 feet 11 inches; weight, 189 pounds. Mother suffered from mitral regurgitation, but later died of erysipelas; father also deceased at 76 years, of pneumonia; rheumatic taint on both sides of the family antecedents.

History.—The previous history furnishes the following data: Childish diseases, chorea at 12, lobar pneumonia at 17, and acute articular rheumatism (lasting 10 days) at 28 years, and a subacute attack, implicating the knees, one year ago. Social history is exceptionally good, so far as his habits are concerned; he also has regulated the diet and taken physical exercise, although not regularly.

Present Illness.—The present illness dates from his forty-third year, when he became nervous and dyspeptic; more recently he has complained of palpitation of the heart, especially on retiring, and of troublesome flatulency on partaking of starches and sweets. He has also been troubled with insomnia and irritability of disposition.

July 29, 1904, a physical examination reveals a pale, moderately well-nourished individual. Apex beat is not visible, but palpable, situated one-half inch to the left of the left vertical nipple line; this is corroborated by percussion on auscultation, the first sound is found to lack vigor and the cardiac rhythm shows great instability. No murmurs, however, are audible and the second sounds are practically normal. The patient was given thermal baths for three days; temperature of bath advised was 32.5° C.; the duration of the first bath was 8 minutes, and the second and third 10 each. A pause of 48 hours was then advised, after which three more thermal baths, to which 1 liter of "*Mutterlauge*" was added, were ordered; this reinforcement to the bath proved too stimulating, hence it was omitted after the second bath; it had caused sleeplessness and a constantly excited action of the heart; the time of these baths was 11, 12 and 12 minutes, respectively, followed by a pause of one day, then thermal-sprudel baths, varying in duration, of 8, 9 and 10 minutes, respectively, were employed. The good effects now began to manifest themselves, and the baths were prolonged to 12 minutes, but omitted every third day. After six thermal-sprudel baths had been taken, sprudel baths of a somewhat lower temperature (31° C.) were advised. On the first day the duration was but 8 minutes, second, 9, and third and fourth days, 10 minutes each; fifth day, 11 minutes, and sixth or last day, 12 minutes. A pause was taken every third day. After three days, "resistance exercises" were also employed, their duration and severity being gradually increased with the progress of the treatment. Patient was then sent to the Tyrol mountains for an "after *kur*." Up to the time he left Nauheim, he was troubled with more or less palpitation and sleeplessness and other nervous phenomena. His heart, however, had returned to its normal dimensions, so far as could be made out by physical signs. At the conclusion of the stay in the mountains, marked and rapid improvement in the condition of the nervous system ensued, and in the course of one month subsequently the patient reported that he was apparently restored to health.

Cases of exophthalmic goiter have yielded completely to the treatment, and I saw one well-marked case after a cure had been effected.

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Dr. P. S. Donnellan said that he believes it is the combination of the baths, the resistance exercises, the environment and the care in diet which contribute to the success of the Nauheim treatment. A good feature, he pointed out, is that the bathtub is sunken into the ground. He considers the resistance exercises a valuable addition to the treatment in that they supply a distinct element of cure in those cases of cardiac dilatation, arteriosclerosis and some valvular conditions. He thinks that great care should be exercised in the selection of cases sent to Nauheim. He referred to the importance of the after-cure, which consisted in the patient being sent to the ck Forest or to some portions of Switzerland to complete cure after a period of six or eight weeks' treatment at heim.

Dr. William S. Wadsworth referred to the physiologic principles underlying all treatment. In regard to the effect of the various ingredients of the bath on the stimulation of the skin and the effect on the sensory nerves, there is, he said, a very great additional effect not mentioned, the effect on the skin itself. For example, on putting a piece of skin, alive or dead, into water there is obtained a certain amount of maceration and an entire change in the feeling of the skin. If the finger is put into the water for half an hour the sensations are entirely different from those encountered from the air. All, he said, know the difference between the sea bath and the ordinary bath. Another factor in the bath, he pointed out, is the suspension of the body in a material which is of a certain specific gravity. Putting the body on a water bed, he considered, is also a very important factor. The changes of the specific gravity will bear the closest clinical study and should give interesting results. In the resistance movements Dr. Wadsworth stated there is a series of valuable factors developed of a purely mechanical sort. On the chemical side there is another group; a chemical change taking place in the muscle itself. Certain substances are taken up, causing change of tone of the whole system. Fatigue stuffs are thrown out which have a distinct effect on every organ that comes in contact with the blood.

Dr. J. Madison Taylor emphasized the importance of the physician, himself knowing enough about the question of exercise to direct a competent person to do the work. He thinks much can be gained if men will take the trouble to study their cases thoroughly, and watch them through from start to finish.

Dr. J. M. Anders said that he is not convinced that the home treatment can be carried forward with much success. To have a suitable establishment in this country would require a specialist in heart disease to make the treatment a special study, and this one should watch the patient daily, noting the effect of every bath and every application of the resistance movements.

Formaldehyd for Disinfecting.—An improved method of disinfecting is the subject of a recent English patent, according to the *Pharmaceutical Era*. One part of paraformaldehyd and six parts of carbon, both in finely powdered condition, are mixed with sufficient gum tragacanth or other suitable gum to form a stiff paste, which is pressed into blocks and dried. When required, the blocks are ignited, formaldehyd vapor being thereby gradually and uniformly disseminated.

PARAURETHRITIS.

AN ANATOMIC REVIEW, WITH A REPORT OF TWO CASES.

J. W. CHURCHMAN, M.D.
BALTIMORE.

The recent occurrence within ten days of two rather unfamiliar forms of gonorrheal infection seemed to offer material of enough clinical interest to be worth recording and of enough anatomic interest to warrant detailed study of the structural features illustrated; and at the suggestion of Dr. Young,[1] in whose practice the cases occurred, the following report has been prepared:

The urethra may be roughly described as a tubular structure, with dependent glandular adjuncts; for throughout its whole extent, from meatus to internal sphincter, and even beyond in the trigone, glands or crypts are to be found occupying a "para-position" in relation to it. All of these are of clinical interest as haunts of infection; some, like the prostate and vesicles, have, beside, a very definite pathologic and physiologic interest of their own; but many (most of them, though small, by no means insignificant) bear so intimate a relation to the urethra that we can only speak of them as paraurethral and of their infection as paraurethritis. Strangely enough, the well-known proper names associated with many of these structures are so associated with little or no justice. Tyson's glands do not exist; Skene's glands were described and their gonorrheal infection noted by Astruc 125 years before the American publication, and again by Guérin in 1864; Littré was probably looking at something quite different from the glands which have since borne his name when he noted structures in the membranous urethra which were, as now seems likely, not glandular at all; and Cowper was antedated just eighteen years by Méry in describing the glands usually known as his.

For their discoverer, in 1680, there was no doubt as to the glandular nature of the depressions he saw on corona and cervix, and from their supposed function (they were first observed in the orang-outang) Tyson called them odoriferous glands. Morgagni subsequently denied their existence as anything more than depressions. So did Haller, Finger and others; and Sprunk, in a Königsberg thesis (1897), reported that an examination of 300 adults had failed to reveal Tyson's glands in a single case. Kölliker, taking a safe middle position, regarded them as inconstant, and only sebaceous glands at best. It seems quite probable, as Delbet[2] has shown from a study of the published cases, that what Tyson and others took to be true glands were only the papillæ and interpapillary spaces of Littré, and that there are no true glandular structures on corona or cervix. Behind the corona and on the mucous layer of the prepuce there are, of course, sebaceous glands, atrophied and rudimentary, and the products of these unite with some desquamated epithelium to form smegma.

The features of the urethral mucosa proper begin with the valve of Guérin, an epithelial transverse fold lying in front of the fossa navicularis, which it closes off somewhat as the aortic valve does the aorta. It is sometimes described as analogous to the lacunæ of Morgagni (so Janet[3]); but both its histology (its epithelium is squamous in type) and its embryology show that it really deserves separate consideration. For the genito-urinarian it is chiefly of interest as offering resistance to the introduction of instruments; and it provides the stereotyped exception for that stereotyped rule of the textbooks about hugging the superior urethal wall in passing sounds. Just back of this peculiar valvular fold begins the familiar series of glands and lacunæ usually associated with the names of Morgagni and Littré. Of these glands it may in general be said that they are more numerous on the upper (anterior) wall than on the lower (posterior); that they are present throughout the urethra, reaching even into the bladder as the aberrant glands of Littré, and that they appear about the third month of fetal life, though their development probably continues after birth (Rubin and Cadiat). Around the prostatic portion they lie in linear series; in the membranous they are scattered without order, though Motz and Bartrina[4] have recently called attention to the clinical importance of certain definite groups; and in the spongy portion they are abundant on the upper and numerous on the lateral surfaces. Their importance as harborers of gonococci needs, of course, no mention. The crypts of Morgagni—blind depressions, having the same structure as the urethra, and not glandular at all—are found from the valve of Guérin to the membranous urethra, where they usually disappear. They are arranged in linear series and were divided by Morgagni into foramina and foraminula, to which Sappey made the somewhat superfluous addition of a middle class. In the median line and on the dorsal surface they are largest, reaching their maximum in the well-known lacuna magna of the fossa navicularis. One 27 mm. deep was reported by Cruveilhier, but usually they do not run more than 6 or 7 mm.

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[1] I am also indebted to Dr. Young for suggestions as to the best use to make of the material he was kind enough to put at my disposal.

[2] Delbet: L'Appareil. Génital de l'Homme (in Poirier and Charpy's Traité d'Anatomie Humaine).

[3] Janet: Les Repaires Microbiens de l'Urètre, Annales des Maladies des Organes Génito-Urinaires, No. 10, 1901, p. 897.

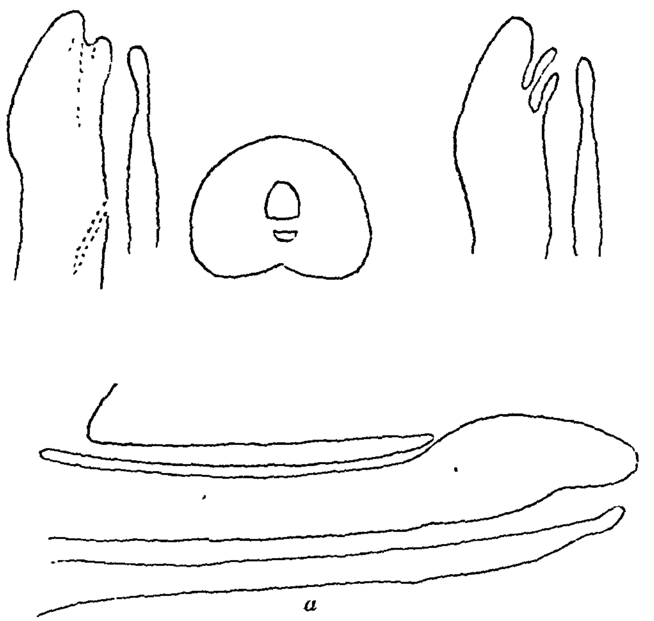

Fig. 1.—Diagram of paraurethral structures above the urethra. a. True dorsal fistula. (Modified from Janet.)

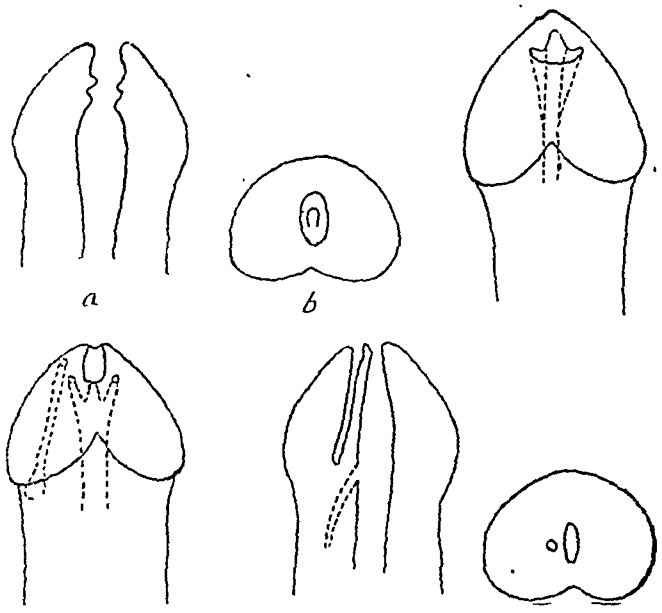

Fig. 2.—Diagram of paraurethral structures lateral to the urethra. a. Diaphragm formation; seen at b. reaching only partly around the urethral circumference. (Modified from Janet.)

In the female the urethral glands have less clinical importance, in proportion as urethritis is a less troublesome disease. In the clitoris, the morphologic analogue of the glans, no true glands exist, though there is usually a mucous crypt on the posterior inferior face, where in one case Wertheimer found the opening of a true clitoridean gland. In the urethra itself true acinous glands, though less numerous than in the male, exist throughout its extent. Of much greater interest and importance, however, are the well-known paraurethral structures to which Skene's name, by a sort of common consent, has become inseparably attached. Anatomically they are a puzzle. For a long time supposed to be the remains of Gärtner's canal, they were later explained as analogues of the urethral lacunæ; but their early appearance (they are first seen in the 65 mm. fetus), their constancy in the human female, and their general developmental history, make it probable that they are really homologues of the *prostatic* glandules—a probability pointed out by Astruc as early as 1755. The position of their orifices, the general course of their canals and their relation to urethral infections suggest quite strongly their clinical analogy to the paraurethral ducts seen in the male, whatever be their exact anatomic nature.

All these features of the male and female urethra occur with enough constancy to be considered normal. In a certain number of cases, however, additional depressions and ducts are found, whose infrequent occurrence gives them anatomic and clinical interest. They may take various forms,[3] from a mere depression on the lip of the meatus to the system of small canals, giving to the glans of hypospadias a veritable moth-eaten character. In any case, they are admirably fitted to store away the elusive organisms—better fitted, of course, as their complication or the deepness of their site increases. Most frequently they occur as small openings on the lips of the meatus, which may prove to be mere depressions (Fig. 1), the mouths of culs-de-sac, or the orifices of true, and, in some cases, long canals, running in general parallel with the urethra (Fig. 2). Varied, too, are their terminations; now they lie beside the meatus as pin-point orifices or suggesting a double meatus; again they are found to open into the fossa navicularis, like a complete fistula; occasionally they burrow through one urethral wall to form a true sinus (Fig. 3a); sometimes (the subphrenal pouches) they run along in the prepuce, where they may be felt as cords, to open into the urethra, or exteriorly, or both (Fig. 3a). In other cases a transverse depression occurs in the lateral walls of the fossa navicularis and forms a diaphragm running, in certain of the patients, only partly around, and suggesting, by the combination of a vertical with a transverse meatus, the beginning of hypospadias (Fig. 2b). A true dorsal fistula may also occur, beginning just behind the glans and running back to the pubic symphysis (Fig. 1a). It is easy to see how complicated a picture combinations of these conditions may give, and this is what we actually get in hypospadias. In this deformity small median depressions on the floor of the false meatus, or of what is really the opened fossa navicularis, are very frequently seen (Figs. 3c and 4); but all sorts of lateral and median canaliculi have also been observed, all of which, except the large, pouch-like urethral auxiliaries seen in Figure 3b, were observed in a patient of Guyon's (Fig. 3c), the richness of whose penile anatomy was somewhat counterbalanced by the co-existence of monorchism. Of the unusual paraurethal gland-like structures it may then, in brief, be said:

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[4] Motz and Bartrina: Contribution à l'Etude des Abscès Périnéaux et des Phlegmons diffus d'Origine urétrale, Annales des Maladies des Organes Génito-Urinaires, No. 21, Nov. 1, 1903.

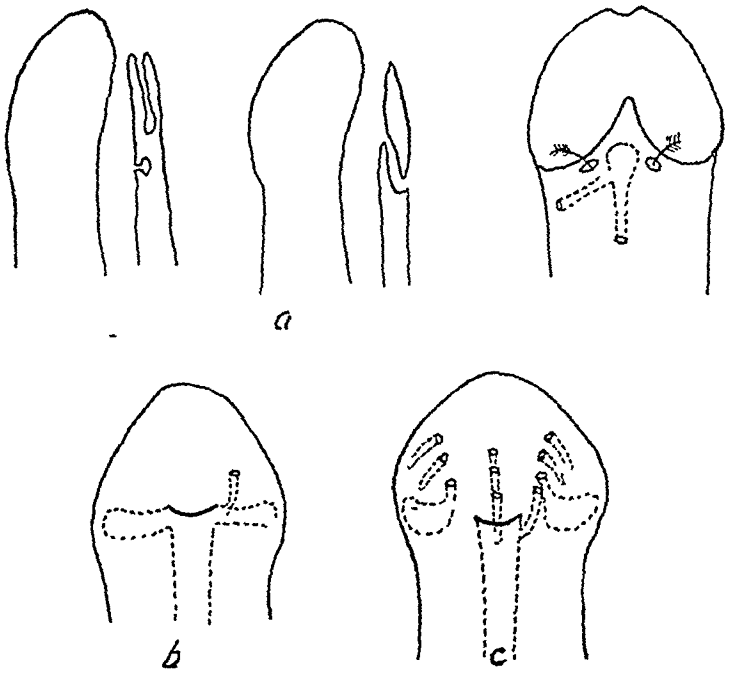

Fig. 3.—a. Diagram of paraurethral structures below the urethra. b. Lateral urethral pouches. c. Guyon's case. (Modified from Janet.)

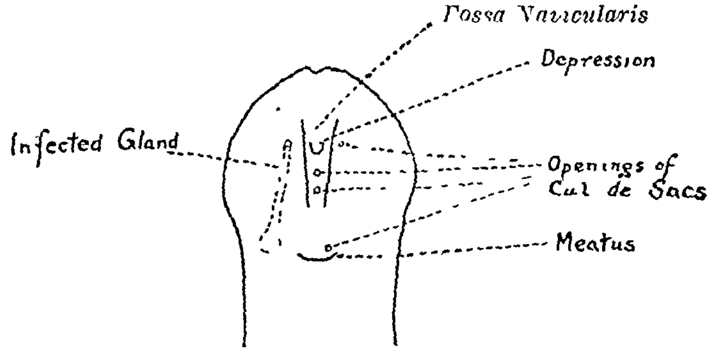

Fig. 4.—Diagram showing conditions in Case 2. (D. C.)

1. They are more frequently seen with hypospadias than in the normal penis.
2. They may occur above, below or lateral to the urethra.
3. They are oftenest seen, when hypospadias is not present, on the lips of the meatus.
4. They vary in extent from slight depressions to long ducts.
5. They may be independent of the urethra or directly connected with its lumen.
6. They secrete a clear serous fluid.
7. They may take the form of a true fistula running either more or less parallel with the urethra or burrowing through the body of the penis to connect with its lumen.
8. The most frequent form, in hypospadias, consists of median depressions in the wall of the fossa navicularis.
9. They may be responsible for persistent infection by offering a safe haunt for organisms.

In the deeper portions of the urethra we find, of course, paraurethral structures analogous to those in front; but these, by reason of their familiarity and their right to a consideration as distinct organs rather than urethral adjuncts, do not concern us here. It may be of interest, however, to note, in connection with the question of infection of paraurethral structures, the valuable article recently published by Motz and Bartrina.[4] These writers, from a study of a large number of pathologic specimens, have come to the somewhat novel conclusion that the conventional ideas about perineal abscess following stricture are all wrong; that Hunter was on the right track when he spoke of these conditions as primarily urethral or periurethral suppurations; that they actually start in suppuration of the "urogenital glandular thoroughfare," composed of prostate, vesicles, Littré's glands, Cowper's glands, and the aberrant Cowper's or intrabulbar glands; that often, if not usually, the urethra is intact, and that "infiltration of urine" is a misnomer for what is really a diffuse bacterial phlegmon (Albarran's "acute septic edema of urinary origin"), the urine being not causative at all, but quite secondary.

Figure 5.

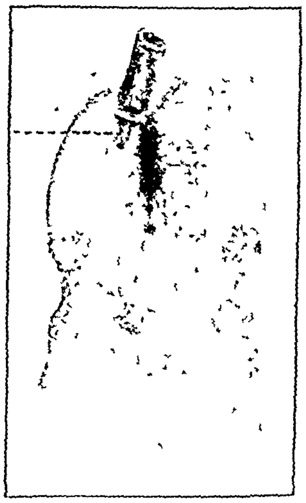

Figure 6.

Fig. 5.—Showing a drop of pus exuding from infected gland in Case 2. (Drawing from photograph.)

Fig. 6.—Showing extent and direction of infected gland in Case 2. a. Hypodermic needle. (Drawing from photograph.)

Case 1.—(S. W.) This was a case of paraurethral infection appearing during the course of a urethritis and occurring in an otherwise normal penis. The patient was first seen on Nov. 26, 1902. The history was of exposure five days previously. There had been urethral burning for three days, but the discharge had not been seen until the day before admission. The left inguinal glands were palpable. There was pus in the first glass; the second and third were clear; the patient denied all previous genitourinary trouble. Gonococci in great numbers were found in the discharge and the case was, of course, one of ordinary acute anterior gonorrhea. The usual treatment with daily irrigations was instituted, santal being given internally and the patient advised to drink copiously of water. For three weeks the course was uneventful, the urine showing no posterior involvement and the discharge gradually diminishing in amount and becoming more chronic in character.

On Sunday, December 26, patient first noticed a small papule on the glans penis near the urethral orifice. On examination I found a pin-point opening on the lips just to the left of the meatus and about opposite its middle point, surrounded by a reddened area with no accompanying induration. On squeezing, a small drop of pus exuded, rich in gonococci. A fine probe could be inserted for a distance of about 3 cm., and ran back and somewhat to the left. No other gland could be found. The urine, which on the patient's last visit had been suspicious of posterior involvement, now pointed to it plainly so that posterior irrigations of 1 to 10,000 silver nitrate were started—treatment of the urethritis from this time on taking the usual course. The infected paraurethral gland was touched with pure carbolic acid on a fine probe, a small piece of cotton was inserted between foreskin and glans and the latter cleaned with peroxid. For the next three days the paraurethral gland continued to discharge despite daily touchings with pure carbolic acid. On January 13 a very little seropurulent discharge could be squeezed from the gland, made up of disintegrated pus cells. One cell was seen containing gonococci. The next day an injection of 2 per cent. protargol was given with a blunt hypodermic needle, and on the 19th no pus could be obtained and no induration felt. On the 22d, however, a fairly large number of gonococci were found in the pus squeezed from the gland and an injection of peroxid was given. The patient was next seen on February 11, when the paraurethral infection had entirely subsided and no discharge could be squeezed from the gland. The subsequent history was the conventional story of chronic urethritis.

CASE 2.—(D. C.) This was one of paraurethritis appearing as the primary gonorrheal lesion in a patient with hypospadias. This penile deformity was an inheritance which had come through the mother's family, three maternal uncles and one maternal great uncle having had hypospadias exactly similar to the patient's. Two brothers, both dead in infancy, had no such deformity. The accompanying very small urethral orifice had, during childhood, given the patient no trouble except the inconvenience of a small urine stream. There was no history of nocturnal enuresis. At 9 years of age the patient was circumcised and the urethral orifice enlarged. Since his fourteenth year he had a good deal of urethral irritability, which began after a small dose of turpentine followed shortly afterward by dreadful strangury without hematuria. Since this time, however, when the urine is dark in color and "concentrated," urination has been accompanied by mild burning. A second attack of strangury without hematuria occurred last year subsequent to the taking of a large number of oranges. There was no history of previous genitourinary trouble. The patient was first seen January 8, giving a history of exposure on December 29 and 31, to the second of which he had reason for tracing his infection. There had been no previous exposure since October 15. Absolutely nothing was noticed until the morning of January 7, when there was some slight itching on the glans. On the night of the 7th a slightly inflamed point on the right lip of the false meatus was noticed, without any suspicion of urethral symptoms. The patient, who was a medical man, thought immediately of lues and spent a miserable night with the books of his student days. He was seen next morning in a highly nervous state, thoroughly convinced that two years of mercury and iodids lay before him. On examination the testicles were found normal, the globus major on both sides palpable, but not tender; veins of the cord enlarged. No rash, glands nor constitutional symptoms. The penis was deformed, as shown in Figure 4. On the right lip of the open fossa navicularis, about one inch from the true meatus, was a small reddened papule with no surrounding induration. No opening was to be seen, but on squeezing the papule a small drop of pus exuded (Fig. 5). A smear showed intracellular diplococci somewhat larger than gonococci and not uniformly stained. Nor was the Gram test decisive, some of the organisms decolorizing and others retaining the stain; but smears made next day on hydrocele agar gave a pure culture of gonococci with a typical Gram reaction. The urethral orifice was somewhat reddened, but there was no sign of discharge nor had there been any burning or other sensation. In the first glass were a few flakes of pus which did not contain gonococci; second and third glasses absolutely clear. The glandular orifice was cauterized with pure carbolic acid, the glans and then the anterior urethra well washed with potassium permanganate. The patient was told to keep the glans clean with peroxid. That afternoon the gland was again cauterized, the anterior urethra washed with a mild bichlorid solution, after carefully cleaning off all infection from the glans, and an effort made toward prophylaxis of the anterior urethra, possibly not yet infected, by an instillation of a 2 per cent. protargol. Lafayette mixture and large quantities of water were ordered internally. Next day there were still shreds in the first glass and carbolic cautery for the gland with 2 per cent. protargol in the urethra was again used. This was repeated on January 10, and on January 11 protargol, 2 per cent., was injected into the infected gland with a blunt hypodermic needle (Fig. 6), the glans being afterward wrapped in cotton soaked with protargol which, owing to the deformity, could fortunately be made to cover the infected orifice without blocking the urethra. January 12 the gland was still discharging; a smear made just at the meatus showed some gonococci, but as there was no discharge beyond a small amount of mucus, and as there had been absolutely no symptoms, it was felt that these might well be accidental from the infected gland and not from an infected urethra. A few flakes of degenerate pus continued in the first glass, but no gonococci could be found in it. On January 13 there was slight enlargement and tenderness of the glands of both groins and the patient reported having had priapism, without pain or chordee, during the previous night. Next day there was a slight amount of pus at the meatus which contained gonococci. The usual treatment of the gland was continued and regular tridaily permanganate irrigations of the anterior urethra were started (1 to 2,000, increasing to 1 to 800). On January 16 a lymphangitis running along the left side of the penis was noted. The gland was irrigated with 1 to 1,000 bichlorid and injected with 2 per cent. protargol. On January 17 pus could be squeezed from the gland in quantity and peroxid was injected with a blunt hypodermic. January 19 there was marked improvement. The urethral conditions remained the same and no gonococci could yet be found in the flakes of pus which continued in the first glass. On January 25 silver nitrate, 1 to 5,000, was substituted for permanganate in the urethral irrigations. No gonococci could be found in a smear from the urethra nor in the pus of the first glass. On January 26 the patient complained of some pain in the right hip joint and next day he was confined to bed with grip. Gonococci gradually decreased in number under treatment and on February 9 they could not be found in the gland which, four days later, was absolutely healed. Continued search for organisms in the urethra and in the few shreds which continued in the first glass failed to reveal them, but an irrigation test showed that some of the shreds had a posterior origin and posterior irrigations were started on February 11. Slight strangury followed their use, and on February 17 patient was taken with rectal pain, a severe chill, vomiting and temperature of 100 degrees. This condition lasted all night, but patient was well again next day. On February 28 examination of anterior urethra on a bougie was made and a few small indurations found. The massage caused some burning and on the night of March 2 patient had a chill with vomiting and fever. A few shreds still persisted in the first glass and a few indurations were palpable on a bougie, but there were no symptoms, and the prostatic examination showed only a few leucocytes in the secretion.

REMARKS.

This case was of interest by reason of the co-existing hypospadias,[5] the doubtful diagnosis in its early stage, when it might easily have been taken for a beginning chancre, a small chancroid or even an infected herpetic blister; the subsidiary character of the urethritis (due largely, no doubt, to the accident of co-existing hypospadias), the presence of unusual urethral irritability, making treatment difficult, and the long persistence of gonococci in the infected duct in spite of vigorous treatment. Indeed, having once seen a paraurethral infection, one wonders not that gonorrhea is so seldom cured, but that it is ever cured; and to have observed a duct, thoroughly irrigated with 1-1,000 bichlorid and then cleaned with hydrogen peroxid, the next day discharging gonococci in numbers, makes it easy to understand why gonococcicides have been more numerous than uric acid solvents, and equally effective. The observation of such a case impresses one with the importance of the mechanical effect of irrigations in urethritis, and the relatively small importance of the specific "anti" effect of the material used. The intraurethral glands are, of course, not so deep as the paraurethral glands, but the conditions there are similar to, if not so extreme as, the rarer affections; and in them, as in the paraurethral cases, the gumming of the glandular mouth, with the formation of a sealed tube containing a pure culture of gonococci in a congenial medium, ought, it seems to me, to be combated by irrigations, the frequency of which is of more importance than their composition. In my first case the gland was quite shallow, urethritis was already present, and the treatment was, therefore, quite unimportant. In the second case, conservative measures were persisted in, consisting of irrigations, strong antisepsis and cauterization, for it seemed unwise to cause any bleeding in the presence of a blood-infecting organism; and, moreover, to have converted this cul-de-sac into a sinus open at both ends, while it would, of course, have given better drainage, would, at the same time, have brought the source of infection nearer the meatus and so have abused the very protection against urethritis which Nature had provided in the hypospadias. Operative measures have, however, been advised, and Janet[3] has devised special instruments for the purpose, the object being either to convert the blind internal fistula into a complete fistula by incising it toward the urethra, or to open its blind end and so provide for through-and-through drainage. The method of incision was used with good results by Genouville[6] in a case of gonorrhea involving two glands, lateral to the frenum, without a co-existing urethritis; and in a case of recurrent gonorrheal urethritis traced to a latent infection of paraurethral gland in a patient with hypospadias (the canals opening both into the urethra and externally) Reymond effected a cure by instillations of strong permanganate. In Swinburne's[7] four cases operative treatment was avoided, application to the infected gland being relied on, together with whatever urethral treatment was indicated. One of these cases resembled my second case in several important particulars, for, though there were never any symptoms of urethritis (the infection was lodged in paraurethral meatal glands) and no cloudiness in the urine, gonococci, which, as a rule, could not be found in the urethra, occasionally appeared there, just as I was able to find them now and then without having caused as much burning as the patient often experienced in his uninfected irritable urethra and without appearing there with any consistency.

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[5] I have since seen a patient with chronic urethritis and hypospadias who showed paraurethral ducts on the right lip of the fossa navicularis and just to the left of the true meatus (similar to the condition in Case 2). Both are now perfectly normal, but there is definite history of their involvement during the acute attack four years ago.

It would be interesting to compare the frequency of paraurethritis with the proportion of males having the anatomic abnormality necessary for its development. Theoretically, it is hard to conceive that such glands, when present, would ever escape infection, lying directly exposed, as they do, not only to the original source of infection, but also to the discharges of a urethritis. The strange freaks of contagion, however, are not to be theoretically prophesied with any exactness, for in my second case the urethra, to which careful prophylactic attention was paid, showed signs of at least temporary infection and continually provided the urine with shreds, while the small gland on the opposite meatal lip, though unavoidably exposed and practically untreated, escaped infection entirely. The number of gonorrheal cases with infected paraurethral glands ought to be the same as the number of gonorrheal cases with paraurethral glands to infect; and the relative rarity of paraurethritis means probably that it is frequently overlooked, and that paraurethral glands are a rather rare anatomic feature. In women in whom "gonorrheal urethritis is an almost constant manifestation of fresh infection" (Bumm[8]), Skene's ducts, occupying a site of somewhat similar exposure, are, of course, very frequently infected, causing the well-known reddened, pouting projections at the meatus; so that, whatever may be the exact anatomic analogy between the glandular structures of the male and the female lying near the urethral orifice, the frequency and importance of infections in the exposed paraurethral glands of the female lend clinical support to the otherwise theoretic presumption that the importance and frequency of their involvement in the male may have been overlooked.

SUMMARY.

The cases here reported show that:

1. Gonorrheal infection of paraurethral ducts occurs in the male, and that it may manifest itself either during the course of an ordinary urethritis or before urethral symptoms have appeared.
2. Paraurethritis may, in its very early stages, simulate inflammatory lesions of the surface of the glans, notably beginning chancre, chancroid, or herpes.
3. Paraurethral infection, once it has become established, can be destroyed only with great difficulty, the organisms reappearing in abundance even after cauterization of the duct.
4. The infection can be overcome without surgical intervention, and the continual existence of a neighboring focus of infection does not necessarily mean a bad urethral invasion if careful prophylactic measures are taken.

Clinical Report.

PAPILLOMA OF THE ASCENDING COLON UNDERGOING MALIGNANCY.

ILEO-COLOSTOMY (LATERAL IMPLANTATION); ILEOCECO-COLECTOMY; RECOVERY.*

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SAN FRANCISCO.

Papillomata occur in the colon with sufficient rarity as compared to their appearance elsewhere, e. g., in the mucous membrane of the nose, ear, larynx and genitourinary tract, to justify the report of this case.

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[6] Genouville and Reymond: Discussion before Asso. Franc. d'Urologie. Annales des Maladies des Organes Génito-Urinaires, No. 17, 1899, p. 1198.

[7] Swinburne: Report of Cases Showing Unusual Lodgment of the Gonococcus. Journal of Cutaneous and Genito-Urinary Diseases, October, 1899.

[8] Bumm: Beitrag zur Kenntniss der Gonorrhea der weiblichen Genitalien. Archiv für Gynäkologie, 1884, xxiii, 327-349; Veit's Handbuch der Gynäkologie, vol. i.

* Reported before the San Francisco Academy of Medicine, September, 1904.

Patient.—Mr. S. B. DeS., an Englishman, aged 36; good family history.

History.—He was always strong and well until the middle of May, 1903. He then complained of a burning sensation in the stomach and colon, of occasional attacks of vomiting, and of loss of strength and flesh. Within a week he noticed blood in the stools. He gradually grew worse, vomited nearly all food, and had small, black, thin stools daily. He lost 42 pounds in 10 weeks.

Examination.—Physical examination showed the heart and lungs to be negative. The abdomen was tympanitic, except on the right side, where palpation revealed a large, hard mass in the ileocecal region extending up to the free border of the ribs. This mass was not sensitive and could not be moved freely.

Treatment.—He was given large enemata of olive oil and olive oil was given by mouth, beside stimulation. He retained the olive oil but vomited all nourishment. He had a movement of small, thin, black stools, containing hard pieces of fecal matter.

Course of the Disease.—This condition of the stools, showing disintegrated blood and hard, marble-like feces, continued until October 1, the patient several times suffering from collapse, at which times his pulse became imperceptible. By October 1 he had lost greatly in flesh and strength, and was profoundly anemic. His emaciation was extreme. There was, however, now no blood in the stools. There was no vomiting and less flatulence. The mass had diminished to the size of an orange, situated in the right iliac region, and had become somewhat more movable. The blood in the stools disappeared with the hard scybala. Through the succeeding months his gain in strength was slow but continuous. April 13 I first saw the patient in consultation with Dr. Harris. I found a fairly well nourished, though anemic patient. His abdomen was normal in appearance, but a mass the size of a small orange could be made out through the newly acquired adipose tissue, in the right iliac fossa. It was freely movable, not tender, and at this time was giving the patient no discomfort. The abdomen was tympanitic over it. It was about the size of a chronically inflamed appendix with a moderate amount of adhesions about it.

Diagnosis.—The question of diagnosis was of some interest. As soon as the colon had been cleared of all scybala the hemorrhage stopped and the patient began to improve. Carcinoma and other malignant growths were now considered improbable. The fact that no bleeding had occurred for so many months forced one to consider other conditions than a papilloma. If the extreme condition to which the patient had been brought was due to the hemorrhages as a result of ulcerations produced by the scybalæ, then the tumor, as found at this time, might be a gumma, hypertrophied gland, or a mass of adherent intestines resulting from the previous ulcerations with peritonitis, or a chronically inflamed appendix with adhesions. There were neither symptoms nor history of syphilis. The growth was too large and too movable to be an enlarged gland. Besides, such a gland would have subsided during these months of convalescence. The mass seemed to have too much solidity to be adherent intestine only. Barring malignant growths, it felt more like a chronically inflamed appendix, surrounded by a mass of adhesions, than anything else. The persistency of the irritability of his stomach seemed to bear this out. Lack of an increase of temperature would mean nothing, as this often is lacking in chronic appendicitis. It was, however, a case for exploratory incision as soon as the patient was in condition. His anemia contraindicated any extensive operation at that time unless necessary, and it was suggested that a blood count be taken. He was found to have 40 per cent. hemoglobin. By June 11 it had reached 70 per cent., and so on June 13 he entered the hospital for operation, not in fine condition for extreme measures on the intestines, but still with a slight margin of strength for the necessary shock accompanying resection if that should be necessary.

Operation.—June 15, an incision was made along the right rectus over the tumor, and it was immediately seen that we had to deal with a tumor on the inside of the ascending colon. The incision was enlarged upward and across the rectus to afford space for intestinal anastomosis. The omentum was incised between ligatures tied about 1½ inches from its right border up to its junction with the transverse colon. The transverse colon was then clamped at the hepatic flexure and tied with a piece of gauze toward the median line. After a purse-string suture had been placed about it on the gauze side, the colon was cut through, the end puckered in with the purse string, and whipped over with catgut. This closed the distal end and the gauze was removed. The other end, after careful cleansing, was wrapped and covered with several layers of gauze for protection. This method was pursued because of the necessity of hurrying on account of the condition of the patient. The ileum was then prepared similarly about three inches from the ileocecal valve, but not severed. The omentum was reflected upward and the large end of a Murphy button was inserted in the usual way into the side of the transverse colon just below it. I took away a small area of the wall to prevent any chance of a later contraction of the new valve. The ileum was then divided, the other half of the button inserted into its proximal end and the union affected—a lateral implantation of the ileum into the transverse colon. After reinforcing the Murphy button with a continuous catgut suture, I drew the omentum down and lightly fastened it over the point of union with two or three fine catgut sutures, and also over the end of the closed colon. After cleansing the field well, the whole was dropped back into the abdomen, covered with a pad and seen no more. I then tied off the ascending colon, cecum, appendix, and stump of the ileum by ligating the mesentery from above downward with strong catgut, occasionally using clamps first. Only at the hepatic flexure did I have trouble from the vessels slipping from the grasp of the catgut, and this was readily controlled by passing a suture through the base of the mesentery. The wound was closed with through-and-through silkworm gut.

Result.—The patient reacted well. No symptoms of peritoneal irritation appeared. With the exception of a colon infection of the wound, apparently soiled by the open ends of the removed bowel, he made a very satisfactory recovery. The button passed on the nineteenth day. Food was given by mouth after the second day.

Examination of Tumor.—Examination of the tumor showed it to be a papilloma about the size of an orange situated on the outer side of the colon opposite the ileocecal valve, with its base undergoing malignant infiltration. An enlarged gland in the mesentery just beneath it was not involved in the malignancy, which speaks for a favorable prognosis in this case. The pathologic report, for which I am indebted to Dr. Mary Halton, showed the tumor to consist of many very light, branching, interlacing strands of connective tissue forming a papillomatous structure. These were all connected by a layer of cylindrical epithelium. In a few places the wall of the bowel had been penetrated, and similar branching connective structures covered with epithelium were found imbedded in altered muscular structure. In many places there were small collections of lymphocytes. The lymph gland showed hyperplasia with some hyperemia, and in places a catarrhal condition of the lymph sinus. No metastasis was seen in the gland.

The small amount of shock in this case, in which the patient was in such a condition as to be susceptible to considerable shock, I attribute to the small quantity of blood lost—every vessel being ligated before being severed—and, secondly, to the avoidance of unnecessary manipulation of the intestines and of undue exposure of them, but a very small amount being exposed at one time.

Few Castor Beans in Kansas.—According to the Kansas State Board of Agriculture, the growing of castor beans in Kansas may shortly cease altogether. The crop of 1904 amounted to only 2,925 bushels. In 1879 the yield 766,143 bushels.

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THE CHEMISTRY OF THE PROTEID MOLECULE.

There are apparently three chief routes by which chemists may seek to learn the structure of the proteid molecule. First, by decomposing it, collecting the products of decomposition and studying their structure, quantity and possible groupings. Second, by splitting the proteid molecule step by step, so that the main groups can be determined and studied each by itself. Third, by synthesizing the proteid molecule. This, of course, is not to be done at one step, but first the ultimate splitting products are to be synthesized, then these joined to form the higher groups, and so on. Hopeless as this problem may seem to the practical physician, yet there are enormous energies directed toward its solution, and encouraging progress is undoubtedly being made. This, however, by no means implies that the goal is near. Two important centers of work on the structure of the proteid molecule are the laboratories of Emil Fischer in Berlin and of A. Kossel in Heidelberg and from each has recently appeared an article summarizing some of the features of the problem.[1]

By far the greatest amount of work has been directed to the isolation and study of the nitrogenous bodies that are split off when proteids are decomposed, as this is of necessity the fundamental study. Proteids in as pure condition as it is possible to obtain them are decomposed, by the action of acids or alkalies as a rule, instead of the digestive ferments, as with these are introduced other and unknown substances. To the earlier discovered and more generally known bodies, leucin and tyrosin, have been added more and more nitrogenous substances that also are split off from the giant proteid molecule which they go to form. Abderhalden gives the following list: Glycocol, alanin, aminovalerianic acid, leucin, isoleucin, phenylalanin, glutaminic acid, asparaginic acid, cysteïn, alpha-prolin, oxy-alpha-prolin, serin, tyrosin, tryptophan, lysin, aginin and histidin, not to mention other less studied substances. If we consider the possible ways in which such a number of substances, each in itself complex, can be arranged, we may have some insight into the difficulties of the problem and the enormous complexity of the proteid molecule. In addition must be considered the great obstacle due to the fact that at the present time we have no means of obtaining any proteid in a positively pure condition. Kossel, indeed, likens the proteid molecule to a great receptacle, filled with various organic compounds formed through the activities of the living organism. At one time it was believed that the differences between different proteids were chiefly external, and that one could be substituted for another in physiologic processes without important consequences. Now it is known that the proportion of the various components of the molecule may vary greatly. For example, arginin was found to occur in four different proteids in the following proportions—83, 40, 20 and 1.8 per cent. We therefore can not assume that proteid from muscle is of exactly the same effect and value as proteid from milk, egg white or grain. If we compare the composition of casein, the chief proteid supplied to the nursing infant, with the various proteids of the body it forms, it becomes evident that during the processes of digestion and assimilation very considerable changes must occur in the proteid foodstuffs. There is already considerable experimental evidence to support the theory that digestion of proteids in the alimentary tract does not stop with albumoses and peptones, but that they are always split up until they are no longer proteids at all, but relatively simple nitrogenous bodies similar to or identical with those obtained in experimental decomposition of the proteid molecule. These bodies are then combined again to form proteid molecules characteristic of the different tissues or organs of the body. Such a conception of the metabolism of proteid certainly fits best into the differences observed in the structure of the body proteids, as compared with the food proteids. If the food proteids remained as proteids in their course through the body, we could hardly expect them to be so greatly changed as they are in some instances when they form the body proteids.

The great diversity that exists in the composition of different proteid molecules is particularly well shown by the results of studies of the simplest forms of proteids, the protamins. In a series of seven different protamins eleven different nitrogenous bodies were found, and of these but two were present in all the protamins, eleven different nitrogenous bodies were six of the eleven bodies, and one contained but four. If such differences exist among the simplest proteids, what must the differences be among the most complex forms. We can no longer consider all proteids as having a *fixed and constant central body, the typical proteid molecule*, to which certain groups are joined to form the different varieties of proteids. Rather must we consider the proteid molecules as formed by the grouping of a large number of molecules of organic compounds, each characterized by containing nitrogen in various structural relations to the carbon, hydrogen and oxygen. In some proteids there are particular groups that are not present in others; in each the proportion of the constituent groups is different from that in any other sort of proteid.

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[1] A. Kossel: Berl. klin. Woch., 1904, vol. xli, 1065. E. Abderhalden: Medizinische Klinik, 1904, vol. i, 12.

ANTITUBERCULOSIS SERUM.

About a year ago, Marmorek made the startling announcement that he had succeeded in preparing a potent antituberculosis serum, but his claims were soon disputed by French practitioners of high standing. The high authority of the assailants of this new remedy caused it for a time to pass out of serious consideration, but it is gradually coming into prominence again as more favorable results from extended trials are being published in different parts of the world. Marmorek is convinced that tuberculin is not the true toxin of the tubercle bacilli which is responsible for the symptoms and for the anatomic lesions of tuberculosis. He believes that it is a bacterial product which, when injected into a tuberculous patient, causes the bacilli in the lesions to secrete toxin and thus to produce a rise in the patient's temperature. That being the case, we could hardly expect beneficial results from treatment with antituberculin serum and they have not been obtained. He has accordingly set out to obtain the true toxin in solution, and apparently has met with some degree of success, and is using this toxin in the immunization of horses. According to his views, the secretion of tuberculin and toxin are two functions that are not found in a culture of tubercle bacilli at the same time. The toxin is produced by the young organisms, while the older ones produce only tuberculin. In order to make the bacilli retain the physical properties of those in young cultures for a long time, and thus to augment their toxicogenic power, he grows them in leucotoxic serum which is prepared by immunizing calves against guinea-pig's leucocytes, by intraperitoneal injections. This leucotoxic serum he found to be a very fair culture medium for the production of toxin, but he was able to improve it somewhat by adding a bouillon extract of liver tissue. When a virulent culture of tubercle bacilli is grown in this serum-liver mixture, toxin is produced in such quantity that from 8 to 10 c.c. of the filtrate kills a guinea-pig of average size in about eight days. When horses are injected with these filtrates there are observed marked local and general disturbances, and their serum gradually acquires antitoxic powers, as is shown by the fact that from 15 to 20 c.c. of it protects a rabbit against an intravenous injection of tubercle bacilli. This dose of tubercle bacilli produces general tuberculosis and death when injected into normal rabbits.

Marmorek used his antituberculosis serum in the treatment of several cases of tuberculous meningitis, but observed only temporary improvement. In some cases of pulmonary tuberculosis the improvement seemed to be very striking. The serum was also used in cases of tuberculous pleuritis and tuberculosis of the spine with very encouraging results. In the former, the transudate was rapidly absorbed and the patient's general condition improved, while in the latter a complete cure was observed. In no case did the treatment appear to do harm. But very unfavorable reports were soon given out by Dieulafoy, Lucas-Championnière and Hallopeau. Recently, however, more favorable results have been reported by a number of French, German, English and Canadian clinicians. Latham,[1] for instance, reports five cases of pulmonary tuberculosis that improved under the serum treatment. Richer[2] reports seven cases, six of which improved and apparently got well, but the time is too short to say whether or not the improvement is permanent. The seventh case was in the last stages of the disease, and not much was expected from the injections. Richer believes, however, that they had an injurious effect, because the patient died thirty-six hours after the second injection. He advises, therefore, that the serum should not be used in the last stages of the disease. Frey[3] reports eight cases that were treated with the serum, six of which showed improvement. The other two cases were not benefited by the treatment, but there were no harmful effects other than slight local disturbances due to the injection of the horse serum. It would seem, therefore, that Marmorek's antituberculosis serum has some antitoxic properties, and as its use is in no way dangerous, it is desirable that it should be given more extended trials, as in this way only can its true value be determined.

The recent work of Friedman[4] on antituberculosis serum also is very interesting and encouraging. He isolated a culture of tubercle bacilli from a tuberculous lung in a turtle, and has shown that this culture is practically harmless for guinea-pigs and calves, but produces in them a fair degree of immunity against human and bovine tuberculosis. He immunized a cow with two injections of this organism, and later inoculated her intravenously with a large dose of bovine tubercle bacilli. This inoculation produced an acute fever, which subsided in a few days, and the cow showed no further signs of sickness. The control animal was very ill, lost weight, and the discharge from its nose contained tubercle bacilli. Three months after the inoculation both cows were killed, and the autopsy revealed general miliary tuberculosis in the control, while only a few healed tubercles were found in the bronchial glands of the immunized animal. Friedman also reports that a cow had acquired tuberculosis spontaneously, but recovered during the process of active immunization with the tubercle bacillus isolated from the turtle. He suggests that equally favorable results might be obtained with this treatment in cases of human tuberculosis. He has used this organism to produce an initial immunity in guinea-pigs and cattle, and was enabled to get a high degree of immunity in these animals later by using human and bovine tubercle bacilli. It must be remembered that it is difficult to produce an initial immunity in these animals if cultures from warm-blooded animals are used at the outset, because the animals usually die from the effect of the inoculations. The immune serum thus prepared protects guinea-pigs against a fatal dose of human or bovine tubercle bacilli, and Friedman hopes in this way to produce an antituberculosis serum of great clinical value.

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[1] Lancet, April 9, 1904.
[2] Montreal Med. Journal, September, 1904.
[3] Münch. med. Wochenschr., Nov. 1, 1904.
[4] Deutsch. med. Woch., 1904, vol. xxx, p. 1673.

THE MORTALITY AMONG PHYSICIANS IN 1904.

During 1904 we recorded the deaths of 2,142 physicians in the United States and Canada; a mortality of 17.14 per 1,000. The average age at death was over 60 years. The average length of practice was over 30 years.

These facts are based on a critical analysis of the list of deaths published week by week in The Journal. In this are now included not only the regular practitioners, but practitioners of the so-called "schools" which are recognized by state boards of medical examiners. Notwithstanding our persistent endeavors to obtain exact information, the statistics regarding these deaths are still incomplete. As illustrating this fact it may be said that in the notices of the deaths no cause was given, or the cause assigned was so obscure or so manifestly incorrect as to be valueless, in 954 cases, the age was not given in 421 instances, and the number of years of practice was omitted in 288 cases. During 1902 we chronicled the deaths of 1,400 regular practioners, during 1903, the deaths of 1,648 physicians, including the homeopaths and eclectics. Thus the mortality rates have been: 1902, 14.74 per 1,000; 1903, 13.73; 1904. 17.14. During 1904 the American Medical Association lost by death 166 members.

Heart disease leads the death causes with 205. These, of course, include the sudden deaths stated to have occurred from "heart failure," etc. Of the deaths due to cardiac disease, 16 were from angina pectoris and 3 from fatty degeneration of the heart. Cerebral hemorrhage, which includes the deaths from "paralysis," "apoplexy," etc., caused 179 deaths. Pneumonia heads the list of clearly defined diseases with 172 deaths, or 7.5 per cent. of the total mortality. Nephritis, including "kidney disease," was responsible for 91 deaths, and uremia caused 16. Tuberculosis is said to have been the cause of 90 deaths, all but 8 of which were from tuberculosis of the lungs. Cancer caused 39 deaths; typhoid fever, 37; septicemia, chiefly from operation wounds, 23; diabetes, 20; gastritis, 16; appendicitis and meningitis, 15 each; bronchitis and insanity, 11 each; hemorrhages and peritonitis, 9 each; asthma, influenza, locomotor ataxia, paresis, rheumatism and gangrene, 6 each; erysipelas, 4, and diphtheria and scarlet fever, 3 each. Of the total deaths, 143 were due to violence of one kind or another. Of these deaths, 95 are chargeable to accidents, 36 to suicide and 12 to homicide. Of the accidents, poison caused 21 deaths; railway accidents, 17; falls, 14; drowning, 10; street-car accidents, 8; runaways, 7, etc. Of the 36 physicians who committed suicide, 14 chose poison as the means; 11, firearms; 3, hemorrhages from cut arteries; 2, asphyxiation by gas; 1, drowning; 1, hanging. In 4 cases the method employed was not stated. During 1904, 12 physicians were murdered. This is 3 more than in 1903, and 1 less than in 1902. Of the 12, 10 died from gunshot wounds, 1 was stabbed, and in 1 case the cause was not stated.

The ages of the physicians who died varied between the limits of 22 and 104 years, the average being about 60 years. The greatest number of deaths—57—occurred at the age of 60; followed by 51 at the age of 70; 45 at the ages of 65 and 68, respectively; 43 at the age of 67; 41 at the ages of 75 and 76, and 40 each at the ages of 72 and 73. Above the age of 70, 596 deaths occurred; above the age of 80, 241 deaths; above the age of 90, 19 deaths; and 3 physicians had passed the age of 100, the oldest on record being 104 years old.

Notable among the dead are the following:

Dr. Hamilton Atchison West, Galveston, Vice-President of the American Medical Association in 1888, for twelve years secretary of the Texas State Medical Association, and an especial authority on malaria, typhoid and yellow fever.

Dr. Edmund Andrews, Chicago, scientist and pioneer in surgery and medical education.

Dr. William Barton Hopkins, Philadelphia, authority on fractures.

Dr. Roberts Bartholow, Philadelphia, whose "Practice of Medicine" and "Therapeutics" are standard works.

Dr. John Milton Duff, Pittsburg, Chairman of the Section on Obstetrics and Diseases of Women, 1894, widely known as a gynecologist, lecturer, teacher, writer, diagnostician and operator.

Dr. Ralph N. Isham, Chicago, one of the oldest and best known surgeons of the West, and one of the founders of the Northwestern University Medical School.

Dr. Frantz H. Coe, Seattle, president of the State Section on Nervous and Mental Diseases in 1904, and one of the most prominent young neurologists of the East.

Dr. N. S. Davis, Sr., Nestor of the American medical profession; one of the founders of the American Medical Association; first editor of The Journal; pioneer in scientific medicine, and a pillar of strength to the American medical fraternity.

Dr. Frantz H. Coe, Seattle, president of the State Board of Medical Examiners of Washington and of the Washington State Medical Association.

Dr. Samuel Warren Abbott, Boston, secretary of the Massachusetts State Board of Health, and an authority on vital statistics.

Dr. Alfred S. Wolff, for twenty-five years inspector and quarantine officer of the Texas State Health Department at Brownsville; expert on yellow fever.

Dr. James Anthony Dibrell, Little Rock, Vice-President of the American Medical Association in 1901, and twice president of the Arkansas Medical Society.

Dr. Henry Munson Lyman, Chicago, for many years senior dean of Rush Medical College and prominent as a neurologist.

GREATER PNEUMONIA MORTALITY IN FLATS.

The insanitary possibilities of the slum tenement house are sufficiently well known. Those of the average medium-priced flat we have already dilated on to some extent. Now it is reported that the pneumonia mortality is especially high in the high-priced apartment buildings—the tenements of the rich—in New York City. Every phase of excessive urban concentration seems to have its special unhygienic accompaniments.

HONEST MANUFACTURERS IN FAVOR OF THE PURE-FOOD BILL.

According to the Washington *Star*, a number of manufacturers of preserved food have communicated with Dr. Wiley, the chemist of the Department of Agriculture, pledging themselves to discontinue the use of any coloring matters or preservatives condemned by him. This is a favorable sign and a step in the right direction, but it does not lessen the necessity of the passage of the pure-food bill now before the Senate. It is an indication that such an act, if once passed, would be effective; what men can afford to do voluntarily will be still more likely to be done by others—if there is a penalty for not so doing. It shows that honorable manufacturers have no desire to oppose the passage of the act.

THE SYMPTOMATIC VALUE OF CHANGES IN THE NAILS.

Changes in the nails as a result of trophic influences have scarcely received the attention of which they appear to be deserving. It is true that the curvature of tuberculosis, the stunted growth of hemiplegia, the transverse marking after typhoid fever and the longitudinal striation attending myxedema have been described. In addition, the inflammation of syphilis is characteristic, while the nails sometimes suffer in conjunction with diseases of the skin, for example, favus, psoriasis, tinea. There is, therefore, good reason for believing that the nails may at times furnish evidence of the previous existence of disease perhaps not otherwise recognizable. Dr. E. Feer,[1] in a recent communication, calls attention to the formation of a transverse and somewhat curved line in the form of a groove or ridge on the nails, especially on those of the thumbs and the great toes, in the sequence of scarlet fever and measles. In typical cases of scarlet fever the phenomenon makes its appearance at the root of the nail four or five weeks after the onset of the disease, therefore at a time when desquamation is about completed. It becomes most distinct at the end of two months and it disappears at the end of six months, the natural period for the growth of the nail. The line is more prominent in proportion to the thickness of the nail and also to the intensity of the exanthem. The occurrence is referred to interference with the growth of the epithelial germinal layer of the root of the nail. In cases of measles, the line was observed under the same conditions as in cases of scarlet fever, although it was less pronounced and correspondingly less frequent. The presence of the line affords a means of estimating the time that has elapsed from the onset of the disease and it is thought to constitute a valuable diagnostic criterion. It would seem more likely, however, that the condition is not peculiar to any one disease, but it is probably associated with a considerable number, although perhaps most marked in connection with those in which the integument suffers in greatest degree. For this reason it may be more pronounced in cases of scarlet fever than in those presenting a less marked exanthem.

FATAL HYSTERICAL HEMOPTYSIS.

We are so accustomed to looking on hysteria as a disease attended only with symptoms of functional derangement that we do not always fully appreciate its true seriousness and occasional gravity. While it is now generally admitted to be a distinct morbid entity, its symptomatology is almost uncircumscribed, and its clinical manifestations are by some still thought to be not wholly free from intentional deception. Unfortunately, we are as yet unable to demonstrate the changes, cellular and chemical, that underly the hysterical disturbance, so that much, no doubt, is thus classified that has other origin. Contrariwise the error is not uncommonly made of confounding the symptoms of hysteria and those of organic disease. The hysterical symptom-complex in its protean variation is not rarely long continued, but fortunately the disease does not often terminate fatally. A remarkable case of this character, however, was recently reported by Dr. N. Pende[1] before the *Società Lancisiana* of Rome, death resulting from hemoptysis, for which no adequate organic cause could be discovered. A girl, 17 years old, who had lived with a sister, now dead of pulmonary tuberculosis, attended with repeated hemoptysis, developed in the sequence of emotional disturbance pulmonary hemorrhage, in conjunction with cough, pains in the chest and fever. On examination, distinct hysterical stigmata were discovered, as well as signs of congestion at the apices of the lungs. Neither elastic fibers nor tubercle bacilli were found in the sputum, inoculation of rabbits with which also yielded negative results. There was, however, a reaction on the part of the patient to tuberculin. The symptoms were considered hysterical, and fever, cough and hemoptysis yielded to suggestive treatment. The patient was dismissed as cured, but the hemoptysis recurred after several days and death followed in the course of a few hours. No anatomic alterations could be discovered on postmortem examination either in the lungs or in other organs that could be considered capable of causing the hemoptysis. The phenomenon accordingly is attributed to vasomotor influences.

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[1] Münchener med. Wochenschrift, Oct. 4, 1904, p. 1782.

[1] Münchener med. Wochenschrift, Oct. 25, 1904, p. 1938.

TRUTH AND POETRY CONCERNING URIC ACID.

I.

In the slow but steady advance which medicine is making, new facts are often established for a long time before they meet with general acceptance, and old theories have had their foundations washed out from under them years or decades before their fallacies have become generally recognized by the profession. It is easy to be too severe in criticizing the inertia of medical men in this respect, for the very conservatism which accounts for the facts mentioned has gone far to protect our guild from the too speedy welcoming of immature conceptions, on the one hand, and from the too easy rejection, on the other, of theories which, under assault by partisan or ignorant critics, prove ultimately to be sound. It is not an unwillingness to accept new truth nor a desire stubbornly to retain error which is characteristic of our profession. On the contrary, it is rather the fear of being duped concerning the new or of being cheated of old and well-tried good which animates it and determines its action or inaction.

Now that the media of communication among physicians have been so marvelously multiplied, it may be urged that the excuse for a continuance in ignorance regarding medical facts and theories is not what it formerly was. Medical journals are, it is true, more widely read than ever before by the profession; the nations, through the activity of collective reviews and international periodicals, have been brought closer together than at any previous time; were the increased information brought to medical readers always reliable, the profession's knowledge ought to be advanced by leaps and bounds. Unfortunately, at a time when everybody writes, the views which are expressed in the various medical journals are so contradictory that the mind without a special scientific training often becomes confused, knows not what to believe, and naturally settles down on the convictions which suit its own inclination best or on statements which have been gained from some authority for which it has a particular predilection. The preliminary training which the average medical man has obtained hitherto in subjects like chemistry, physics and biology has been totally inadequate, when discussions involving disputes in these domains are brought to his attention, to permit him to form sound judgments concerning them. A further difficulty for the medical man in practice lies in the inequality of the articles which are admitted to the pages of even those medical journals which he has been taught to regard as the best. So disparate are the views expressed in different articles in the same number of a given journal that the average medical mind often turns from the reading of them with a feeling of uncertainty, if not of disgust.

It is one of the objects of The Journal in its editorial pages to present, from time to time, as accurately as it can, synopses of the real advances which take place in medical research. It is and has been its endeavor to promulgate as firm convictions in these columns only those views which receive the support of what it regards as the soundest medical judgment of the time. The wisest may err, and there can be no doubt that, even when the greatest care is exercised, an erroneous opinion may occasionally be supported or a faulty judgment passed. Should this occur, The Journal would be the first to regret it, and it would seize the earliest opportunity to correct it. Its readers may rest assured, however, that no pains are spared to prevent the expression of opinions other than those which represent the sanest medical thought of the day.

One of the subjects in which the growth of our conceptions has been extremely slow, but about which, to-day, our real knowledge far outruns the general professional recognition of it, is that which has to do with the origin, fate and significance of uric acid in the body. The Journal has, on several occasions, called attention to progress in knowledge in this field; it has warned against many of the fallacies which persist, and it has urged the profession to revise views which, though long taught, have been proved to be without firm foundation. The false ideas concerning the mode of formation of uric acid in the body, its decomposition and its pathologic significance have become so deeply rooted, not only in the professional mind, but to a certain extent in the mind of the laity, that it is unusually difficult to eradicate them. The perpetuation of erroneous ideas has been helped no little by facile publications like those of Haig, wherein, doubtless with good intentions and assuredly with great enthusiasm, doctrines have been advocated which are based partly on faulty or misinterpreted observations of others, partly on unskilled and non-scientific personal experiments. When such ideas happen to harmonize with the interests of an unbridled commercialism[1] which floods the country with highly colored and sensational reports of marvelous cures by so-called antilithics and uric-acid solvents, it is easy to understand how the attempt may be made by those who have vested interests to prolong the drowsiness of the profession and the laity, and how any effort made to awaken the somnolent may excite antagonism.

A considerable body of definite facts has now been established concerning uric acid. We really know a great deal about its origin, the transformations which it undergoes and the way it is excreted. We are beginning to know something of its significance, though far less, it must be admitted, than many people imagine. It is our intention to review, thoroughly though succinctly, the mass of work which has been done on the subject. We shall try to sift out the wheat from the chaff, and shall make an effort to distinguish what is the truth from what is mere poetry in this matter. In our next issue we shall begin with a review of the doctrines which have been held regarding the formation of uric acid in the body; in succeeding numbers of THE JOURNAL we purpose taking up the normal fate of uric acid in the tissues, the facts bearing on the localization of the processes of uric-acid formation and decomposition, the chemical and physical properties of uric acid and urates, including the conditions of solubility and precipitation, and, finally, the relation of uric acid to pathologic processes.

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[1] Since this was written The Journal has received a letter from a firm which has been advertising a "uric-acid solvent." This letter is a reply to a circular sent out by the advertising department; it bears so directly on the point mentioned that we quote a part of it: "Should we place an 'ad' with you, it would be to exploit a proprietary preparation for the relief and cure of the uric acid diathesis. It has been made apparent to us that it is the avowed policy of The Journal to discourage the use of all proprietary preparations, and under date of August 20 The Journal in an editorial made a very sarcastic, if not unethical, attack on the uric acid diathesis. We concede to any physician the right to his personal opinion on this subject, and to any journal the right to publish any views which may be held by its editors, but when such views tend to discourage the profession in the use of uric acid solvents and eliminants, it certainly impairs the value of its advertising pages as a medium through which the manufacturer of a uric acid remedy may reach the profession. This is an additional reason why we now decline to use The Journal through which to advertise ———."

The literature on the subject is immense. One has only to glance at the collective bibliographies of the subject which have been prepared, for example, that of Wiener, to realize the magnitude of the task which a careful historical review necessitates. It would be impracticable as well as undesirable to marshal all the authorities in the review of the subject which we intend to make for our readers; it will suffice if we point out the most important steps which have been taken as knowledge of the subject has advanced. We believe that such a historical presentation, though it will be full of surprises for many, is the best means of making clear to the profession at large the true status of the questions at issue.

Medical News.

DISTRICT OF COLUMBIA.

Health of District.—The report of the health officer for the week ended December 31 shows the total deaths to have been 122. There were 119 births and 13 still births. At the close of the week there were under treatment 45 cases of diphtheria, 39 of scarlet fever, 172 of typhoid fever and one of smallpox.

Puerperal Arthritis.—At the meeting of the Washington Obstetrical and Gynecological Society, held on January 6, Dr. Edward E. Morse read an essay on puerperal arthritis. He took the position that all cases of puerperal arthritis are caused by sepsis and that the so-called puerperal rheumatism is puerperal sepsis.

Municipal Hospital.—The district government is about to build a municipal hospital at a cost of $250,000. The plans presented in competition by Frank Miles Day of Philadelphia were accepted. Congress has been asked to appropriate $150,000 additional to accommodate several hundred tuberculous patients who are barred from other hospitals.

ILLINOIS.

Fire in Hospital.—A fire which broke out in the hospital of the Illinois State Reformatory, Pontiac, caused damage estimated at $3,000. Of the 40 patients all were taken out safely.

State Teachers and Tuberculosis.—At the meeting of the State Teachers' Association at Springfield great interest was manifested in the exhibits of the State Board of Health showing the prevalence of tuberculosis in the state and its mortality as compared with that of other diseases. The association unanimously voted to indorse the efforts of the State Board of Health and to assist in the supervision of consumption by the dissemination of knowledge concerning the disease, the prevention and cure.

Personal.—Dr. H. C. Howard, Champaign, has gone to Florida for the winter.——Dr. and Mrs. Harry H. Whitten, Peoria, have returned from Europe.——Dr. William Engelbach, Arenzville, has returned from Europe.—Dr. George A. Clotfelter, mayor of Hillsboro, has been appointed local surgeon for the Big Four System.——Dr. Paul G. Manley, Mount Carmel, while driving across a railway track, was struck by a train, his buggy was demolished, but he escaped with severe contusions.——Dr. Milton Jay, Chicago, has been re-elected president of the Association of Chicago & Eastern Illinois Railway Surgeons.

Chicago.

Smallpox.—During the week ended January 7, 18 cases of smallpox were sent to the isolation hospital. Of these 12 had never been vaccinated and 6 had old scars.

Deaths by Violence Decreased.—During 1904 there were 542 less deaths from violence than in 1903. There were 59 fewer suicides, 7 fewer murders and only 8 more railroad deaths and 6 more street-car fatalities than in 1903.

Tuberculosis in Office Buildings.—Dr. W. A. Evans in a talk on consumption before the union of janitors and window-washers, said that ventilation of office buildings was not properly secured and that unventilated rooms furnished ideal breeding places for the germ of the disease. He urged the abolition of dry sweeping.

Deaths of the Week.—During the week ended January 7 there were 542 deaths, equivalent to an annual mortality of 14.19 per 1,000. All the important causes of death show decreases, the most marked in consumption—from 68 to 41, and the total from all causes is nearly one-fifth (19.7 per cent.) lower than that of the week before.

MARYLAND.

Baltimore.

Dinner to Dr. Bosley.—The employes of the health department entertained Dr. James Bosley, health commissioner, with a banquet, December 27.

Personal.—Dr. Thomas C. Bussey has been elected physician to the almshouse, and Dr. J. Royston Green, physician to the county jail of Baltimore County.——Drs. Randolph Winslow and J. Mason Hundley paid a visit to Dr. Mayo's Hospital, Rochester, Minn., last week, returning January 1.

Mandamus Proceedings Dismissed.—Dr. Campbell F. Flautt instituted mandamus proceedings some time ago in the Court of Common Pleas to compel the State Board of Examiners of the Medical and Chirurgical Faculty to issue him a license to practice medicine in Maryland. The mandamus was dismissed by Judge Stockbridge December 20.

Concerning Dr. Osler.—The *Maryland Medical Journal* has issued a booklet containing a portrait of Dr. Osler and comments from different sources on his resignation.——The committee on the Osler testimonial has appointed a subcommittee of 50 to canvass the profession of the city, each one seeing 10 doctors.——The twenty-ninth anniversary of the foundation of the Johns Hopkins University will be celebrated February 22. Dr. William Osler will deliver the principal address, probably his last public address before he leaves America.

MASSACHUSETTS.

Leper Colony.—The Massachusetts State Board of Charities has bought land in Harwich, a town on Cape Cod, for the establishment of a "leper colony" to accommodate the three patients now within the limits of the state. Very vigorous protests are being made from all the surrounding towns.

Sanitation of Cities.—Prof. William J. Sedgwick, professor of biology and lecturer on sanitary science and public health in the Massachusetts Institute of Technology, Boston, will give a course of ten free public lectures before the Lowell Institute on Monday and Thursday evenings, beginning January 9, on "The Sanitation of Cities."

Made a Test Case.—In order that the case might go to the Supreme Court, the judge in the Superior Civil Court at Dedham ordered a formal verdict for two children who brought suit for $10,000 each against the town of Hyde Park because they were denied school privileges, owing to a failure to be vaccinated. One hundred and fifty dollars was allowed the girl and $50 to her brother.

Home for Crippled Children.—The last legislature voted $300,000 for the purpose of building and maintaining a home for crippled and deformed children. The board appointed by the governor to have charge are Drs. Edward H. Bradford, William A. Morrison of Boston, and Messrs. William Endicott, Jr., Leonard W. Ross and A. S. Pinkerton. The board organized with Dr. Bradford as chairman.

Milk Examination.—Examinations of Boston's milk supply made by the Board of Health during last summer showed that over 46 per cent. of the samples taken were warmer than the legal limit of 50 F.; 27.5 per cent. of the samples had more bacteria than the law allows, 500,000 to the c.c. Of these 9.75 per cent. had betwen 500,000 and 1,000,000, 12.75 per cent. between 1,000,000 and 5,000,000, and 5 per cent. more than 5,000,000.

The Question of Cancer.—The statement that only San Francisco exceeds Boston in its total annual deaths from cancer, and that while the former had in 1903, 103 deaths per 100,000 of population the latter had 85, is explained by the Board of Health on the basis that more careful mortality records are kept in Boston than in many other large cities. They maintain that the disease is not more prevalent than elsewhere. It is said that the report of the cancer investigation carried on at Harvard Medical School by Dr. E. H. Nichols for the past two years under the Crofts bequest of $100,000, will soon be published and will show that no etiologic factor except heredity is well established.

NEW YORK.

Fire in State Hospital.—Fire was discovered in ward 2 of the Middleton State Hospital. After flooding the floors the fire was subdued.

Liberal Gift.—The Syracuse Hospital of the Good Shepherd received a New Years gift of $50,000 from William B. Cogswell, who has previously contributed large sums to the support of the institution.

Personal.—Dr. Mary Clayton has resigned from the staff of the St. Lawrence State Hospital to accept the position of woman physician at the Craig Colony for Epileptics, Sonyea. ——Dr. Charles W. Clendenan has been appointed city physician of North Tonawanda.

Crippled Children's Hospital.—The New York State Hospital for the Care of Deformed and Crippled Children, Tarrytown, will move about April 1 to its new site at West Haverstraw, for which $50,000 was appropriated by the last legislature. During the year ended Sept. 30, 1904, 17 new patients were admitted, making a total of 42 patients treated during the year.

For an Inebriates' Home.—A bill has been prepared which will be presented to the legislature for the establishment in New York City of an inebriates' home, where there will be free treatment of alcoholism and drug habits. The home as planned will be built from money received from the excise law. It is estimated that about 1,000 patients would be found for such a home at once. The management would be under the mayor with a board of medical advisors.

The Governor's Message.—In his annual message Governor-elect Higgins says concerning the insane:

> The management of the state hospitals for the insane, fourteen in number, with a total number of patients on Oct. 1, 1904, of 25,019, was completely centralized by legislation of 1902 abolishing the boards of managers of the various hospitals and leaving with the commission on lunacy complete jurisdiction, both as to financial control and internal administration. The advantages of centralized control of the financial operation of the hospitals are evident. It is of the utmost importance, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually, and the care of so many thousands of peculiarly unfortunate and defenseless persons, should rest on a broad basis of public interest and public confidence and should retain the coöperation of philanthropic citizens throughout the state. In my opinion this can best be secured by leaving the control of all financial matters, as at present, in the hands of the commission, and by providing for each hospital a board of managers, in general charge, through the superintendent, of the internal affairs of the hospital.

He also favors the enlargement of the present hospital and the establishment of a new state hospital. He also advocates a separate building in each state hospital for the treatment of acute insanity. He protests against the commitment as dependent insane of those who are not properly state charges and who have property or relatives legally chargeable for their support and maintenance. He recommends that before any insane person is permanently received in a state hospital as a state charge the question be judicially investigated and determined whether such person is a pauper without relatives chargeable with his support and able to contribute thereto. He also recommends increased accommodations for the feeble-minded and that all sources of public water supplies be examined and analyzed at frequent intervals and that the private water supply of public resorts should also be subject to state analysis and the results should be made public. A system of state inspection of domestic water supplies to be maintained at the cost of the municipalities, corporations and private owners is recommended. A state water storage commission, having also for its object the supply of water to the cities, might be of great service. He further states:

> The court of appeals has finally upheld the constitutionality of the Tenement House Law of 1901, which has been contested by the courts. This measure is one not only of charity but also of justice; not only for the benefit of the poorest families but also for the general welfare of the community. For its enactment and enforcement my predecessor (Governor Odell) is entitled to the highest credit. The law is now definitely established.

New York City.

Crusade Against Voodoo.—Through its counsel the New York State Medical Association has begun a crusade against voodoo doctors of the East Side of New York City.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended Dec. 31, 1904, 434 cases of tuberculosis, with 134 deaths; 302 cases of diphtheria, with 45 deaths; 206 cases of scarlet fever, with 16 deaths; 126 cases of measles, with 6 deaths; 52 cases of typhoid, with 7 deaths; 87 cases of varicella, and 18 deaths from cerebrospinal meningitis.

Tenement House Sanitation.—The tenement house commissioner, in his annual report to the mayor, says that of 48 blocks in the Thirteenth Ward there are only seven in which there were no deaths from tuberculosis in 1904. Of 1,100 sanitary inspections made, from January 1 to October 1, the conditions discovered led the department to file 684 violations against tenement houses in this ward.

Death Rate Increased.—The death rate per 1,000 in Greater New York for 1904 was 20.32, an increase of over 2 per cent. over 1903. There was an alarming increase in the number of deaths from pneumonia and bronchitis, deaths from this cause numbering 14,518. There was also an epidemic of cerebrospinal meningitis which killed 1,211, while in 1903 there were only 271 deaths from this disease. During the year there were 55,195 violent deaths.

Bellevue Hospital Overcrowded.—Records show that the total number of admissions to Bellevue in 1904 was 28,925, the highest number the hospital has ever received. This is nearly 5,000 more patients than were received five years ago, with the same accommodations. The recent order compelling the physical examination of patients has entailed an increase in the house staff from 43 to 48. The additional influx has compelled many to sleep on mattresses on the floors and the accommodations for the house staff have been proportionately reduced.

Buffalo.

Hospital Opened.—Mercy Hospital has opened its doors for the reception of patients.

Measles Epidemic.—The measles epidemic continues at Buffalo. In some school houses the attendance of classes is reduced 50 per cent. No school has entirely escaped the epidemic. There were 1,200 cases of measles reported last month and the average number reported each day to the Health Department is 40.

School Inspection.—Dr. M. Elizabeth Schugens recently read a paper entitled "Medical Inspection of Schools" before the Women Teachers' Association. She embodied in her paper a report of various large cities where medical inspectors are employed to visit schools, such as Boston, New York, Philadelphia and other cities. In the public schools of these cities the medical inspector visits the primary grades every morning and examines children who have been pointed out by the teachers as unfit for class work. If the medical inspector finds the child ill, it is sent home, given a sealed envelope containing a letter to the parents, stating the child's ailments and recommending that the family physician be called. Often children go to school in the first stages of an infectious disease. Here medical inspection is a safe barrier, and also to determine the safe time for a child convalescing from contagious disease to return to school. Boston was the first city to inaugurate the medical inspection of schools and Buffalo will, it is hoped, soon follow this excellent example and institute regular medical school inspection.

OHIO.

New Hospital at Lima.—The commission chosen to select a site for the proposed new state hospital for the insane unanimously selected Lima after a two days' session. The Dunn farm was the site chosen, about one mile north of the city and consisting of 620 acres.

Welch in Cincinnati.—Dr. William H. Welch of Johns Hopkins University represented his college at the inauguration exercises held in Cincinnati in honor of Charles W. Dabney, president of the Cincinnati University. During his visit Dr. Welch addressed the students at the Cincinnati Hospital. A general reception was given in his honor by Dr. Joseph Ransohoff.

Society Election.—At the annual meeting of the Marion County Medical Society the following officers were elected: President, Dr. Charles E. Sawyer; vice-president, Dr. Lewis D. Hamilton; secretary, Dr. Dana O. Weeks; treasurer, Dr. Clyde R. McKinniss; censors, Drs. Joel B. Taylor and C. T. Wiant, and delegates to the Ohio State Medical Association, Drs. Robert C. M. Lewis and A. Melville Crane, all of Marion.

City Will Investigate.—The ordinance introduced several weeks ago providing for the expenditure of $2,000 to employ agents to investigate the books and management of the Cincinnati Hospital, has, on recommendation of the finance committee, been indefinitely postponed. In its place a resolution was adopted authorizing the expert accountants employed in the office of the city auditor to make the investigation.

Cincinnati Hospital at Avondale.—It has been finally decided by the Board of Public Service by a vote of 4 to 1 that the new Cincinnati Hospital will be erected at Avondale, a suburb of the city. The hospital grounds will occupy about 25 acres, away from the noise and smoke of the city. The pavilion plan, two or three-story buildings, has been decided on as the most feasible, and the entire structure is expected to accommodate about 750 patients, thus providing sufficient facilities for a number of years to come. There will, of course, be emergency hospitals situated in the city proper. The estimated cost is more than $1,000,000. Architects have already begun the plans.

PENNSYLVANIA.

Third Donation.—The sum of $500 has been donated to the West Chester Hospital by a "friend." This is the third successive year this friend has thus remembered the institution.

Personal.—Dr. Alford H. Read, Norristown, has been appointed coroner's physician.——Dr. Albert E. Osborne, West Chester, has moved to California, where he will resume medical practice.——Dr. Charles B. Noecker has been appointed surgeon in the police department of Scranton.

Philadelphia.

Physician Fined.—Dr. Charles M. Burk, who was arrested by the Board of Health for delaying properly to report a case of smallpox, was fined $5 in the magistrate's court.

Children's Hospital Report.—The Children's Hospital of the Mary J. Drexel Home treated 573 patients during the year; of these 340 were treated free. There were 381 surgical operations, 11,223 nursing cases and 10,446 clinic cases. Out of 65 cases of typhoid fever one patient died, and out of 71 cases of appendicitis operated on, none died. The expenditures of the institution during the year were $58,294.34.

Personal.—Dr. Wharton Sinkler was elected a member of the board of trustees of the University of Pennsylvania, to take the place of Dr. W. Howard Furness, resigned.——Dr. Sinkler has also been elected a member of the board of managers of the Episcopal Hospital.——Dr. Alfred Gordon has been appointed by Dr. Edward Martin, director of the health bureau, examiner of the insane in the Philadelphia Hospital.

Work in Hospitals.—During December the following patients were treated in the different hospitals of the city: Three hundred and nine cases were admitted to the wards of the Pennsylvania Hospital, and 1,600 to the receiving ward; there were 999 new patients treated in the dispensary, and 3,552 return visits were made. The Howard Hospital admitted 31 patients, treated 152 accident cases, and 514 new cases in the dispensary. The Charity Hospital treated 647 patients.

War on Tuberculosis.—Dr. Alexander C. Abbott, chief of the Bureau of Health, has issued a circular letter asking the physicians of the city to co-operate with the health bureau by reporting all cases of tuberculosis which come to their knowledge. He explains that tuberculosis is not regarded, however, with the same concern as are the acute transmissible diseases, and is, therefore, not subjected to the same official supervision. Nevertheless, for the protection of the public health, it is essential that cases of tuberculosis be kept under sanitary supervision. For the information of the health board appropriate blanks will be furnished the physicians for properly reporting this class of cases.

Busy Year for Coroner.—A summary of the work done by the coroner's staff during the year just closed shows that 3,467 inquests were held. During the year 1903, 3,357 were held, indicating an increase of 110. There were 4,969 cases investigated and 703 postmortems made. The largest number of deaths resulted from railroad accidents, 204 being attributed to that cause. The deaths classified with the fatal casualties aggregated 1,065. There were 209 suicides and 43 homicides. Heart disease was responsible for 148 deaths; burns and scalds, 148; drowning, 99; gunshot wounds, 52; asphyxiation, 87; malpractice, 38; poisoning, 21; infanticide, 2; alcoholism, 25; exposure, 3; heatstroke, 2; lightning, 1; electric shock, 6, and starvation, 1.

Health Report.—The total number of deaths for the week reached 478, as compared with 656 for the corresponding period of last year, and 497 during last week. The deaths from pneumonia during the week showed a decrease, 62 being reported, as compared with 69 last week and 89 in the preceding week. Typhoid fever is on the increase, 99 cases being reported, an increase of 26 over the preceding seven days. There were 256 cases of contagious disease reported, with 25 deaths, as compared with 223 cases and 21 deaths for the week previous. There were 8 deaths from typhoid fever, 14 from diphtheria, 64 from tuberculosis, 22 from cancer, 19 from apoplexy, 56 from heart disease, 62 from pneumonia, 19 from enteritis and 36 from Bright's disease.

Pulmonary Diseases in 1904.—Pneumonia heads the list of fatal maladies in this city, with consumption a close second. The total number of deaths from pneumonia during 1904 aggregated 3,360, as compared with 3,107 from consumption. Much of the pneumonia is attributed to the cold, damp trolley cars. Notwithstanding that death has been frequent from pneumonia and consumption, the health of the city is regarded good. The total number of deaths during the year reached 25,972, which is an increase of 25 over 1903. The death rate per 1,000 inhabitants for 1904 was 18.44, as compared with 18.82 in 1903. The deaths from pneumonia in 1904 show an increase of 180 over 1903, and the total reached 3,180. The deaths from consumption in 1904 exceed those of 1903 by 54. Deaths from typhoid fever in 1904 reached 744, which is 213 less than during 1903, while the deaths from smallpox last year were 229, a decrease of 49 from the figures of 1903.

College of Physicians Elects Officers.—At the regular meeting of the College of Physicians, January 5, practically all the former officers were re-elected for the coming year, as follows: President, Dr. Arthur V. Meigs; vice-president, Dr. James Tyson; censors, Drs. Richard A. Cleeman, S. Weir Mitchell, Horace Y. Evans and Louis Starr; secretary, Dr. Thomas R. Neilson; treasurer, Dr. Richard H. Harte; honorary librarian, Dr. Frederick P. Henry; councilors, Drs. DeForest Willard and John H. Gibbon; committee on publication, Drs. Gwilyn G. Davis, Thompson S. Westcott and William Zentmayer; library committee, Drs. George C. Harlan, Francis X. Dercum, Charles A. Oliver, William J. Taylor and S. Weir Mitchell; committee on Mutter Museum, Drs. John H. Brinton, George McClellan and J. Alison Scott; hall committee, Drs. John K. Mitchell, Thomas H. Fenton, B. Alexander Randall, E. Hollingsworth Siter and Aloysius O. J. Kelly; committee on directory for nurses, Drs. Wharton Sinkler, James C. Wilson and James V. Ingham.

GENERAL.

Yellow Fever in Panama.—Six cases of yellow fever are reported in the Panama canal district. The disease is endemic in this vicinity, but no cases have occurred recently until these now reported.

Election of American Physiological Society.—At the annual meeting in the physiological laboratories of Jefferson Medical College, Philadelphia, December 28, the following officers were elected: President, Dr. William H. Howell, Baltimore; secretary, Dr. Lafayette Mendel of Yale; treasurer, Dr. W. D. Cannon of Harvard. The members of the society were entertained at luncheon after the meeting by Dr. Henry C. Chapman.

Fake Drug Concerns.—Dr. William H. Wiley, head of the United States Bureau of Chemistry, in addressing the Society of Chemical Industry, New York, said that there were in the United States no fewer than 5,000 fraudulent drug manufacturers who should be put out of business. During the past year he said fifty such firms had been put out of business for selling or for advertising "fake" medicines. His own name had been used without his permission by one firm in an endorsement of its goods. When he protested he was told to mind his own business. However, he forced the firm to refrain from using his name.

CANADA.

Montreal Hospitals Filled.—Montreal is suffering from an abnormal amount of sickness at the present time. The various hospitals of the city have been overtaxed and there is no immediate indication that relief will come. In the Montreal General Hospital there is room for 202 patients, but 210 have been in residence. The number of patients in the institution on Dec. 31, 1904, was 191.

Contagious Diseases in Toronto.—During December, 1904, there were 227 cases of diphtheria in Toronto, as against 173 cases in the corresponding month of 1903; of scarlet fever there were 50 cases, as against 23 a year ago; of typhoid fever 14, as against 16 a year ago. The total number of cases reported during the year were as follows: Diphtheria, 1,360; scarlet fever, 318; typhoid, 133, as against 1,103, 699 and 156 for 1903. The deaths in December, 1904, were: Diphtheria, 17; scarlet fever, 1; typhoid fever, 6. The total number of deaths in 1904 from diphtheria were 125; scarlet fever 12; typhoid fever, 41; smallpox, 2, as against 136 for diphtheria, 100 for scarlet fever, 41 for typhoid fever and one for smallpox in 1903. The death rate from scarlet fever in 1904 was the lowest in six years.

FOREIGN.

Million to Charity.—Lord Mount Stephen has given over $1,000,000 to the King's Hospital Fund in England.

City Sanitarian.—The municipal authorities of Stettin, Germany, have installed a city "hygieniker," with a salary of nearly $2,000.

New Hospital in Rome.—The cornerstone has been laid of a hospital for the English-speaking residents of Rome. It is located on the Coelian Hill and has been endowed by contributions from many Americans and Englishmen.

Proprietary Medicines in New Zealand.—A bill has been brought before the New Zealand parliament to make it compulsory that all patent medicines sold in New Zealand place before the public the composition of the remedy sold. This will affect a great many from the United States.

Trachoma in London.—It is reported that so great is the rush of Russian Jews arriving in London suffering from trachoma, that the hospitals are turning them away. A large number of these persons are en route to America, while others have been rejected by the United States immigrant inspectors and having been returned by the steamship companies, are stranded in the United Kingdom instead of being sent back to Russia.

An Ophthalmologist at the Seat of War.—A. Moltrecht writes from the front during October that typhoid cases are numerous notwithstanding the almost wintry weather. He has encountered a number of interesting bullet wounds of the eye, among them several in which the bullet traversed the orbit, nose and mouth, or else passed out along the roof of the orbit, without injuring the eyeball. In several cases the bullet had injured the optic nerve, but the subject recovered without permanent functional disturbances, which is certainly, he adds, the *ne plus ultra* of a "humane" bullet.

American Hospital in Korea.—A new hospital building has been dedicated in Seoul, Korea, to be conducted under the direction of the Presbyterian Board of Foreign Missions. The first operation was performed in the new building on Oct. 4, 1904, and was for the extraction of cataract, one of the workers characterizing it as an especially appropriate one, that the first important work of a new missionary hospital should be an operation for "letting in the light." The entire cost of the building was defrayed by L. H. Severance of Cleveland, Ohio, and the hospital will be known as the Severance Memorial Hospital.

Joke Taken in Earnest.—A German daily paper has republished one of the satires from the burlesque number of the *Münchener med. Wochenschrift*, taking it in earnest or pretending to do so, and commenting drastically on it. The satire purported to be an ad. from a medical graduate seeking a place as substitute for a physician where he would have an "opportunity to learn something of obstetrics, of which at present he has not the faintest glimmer of knowledge." The daily paper cites the ad. as a "picture of the times" and comments on the audacity of the fledgling physician in thus offering his services to experiment on human beings as if they were laboratory rabbits. The editor of the lay paper in question is chairman of the local sickness-insurance companies (Krankenkassen), at Leipsic, where there has been, and is still, considerable friction between the Kassen and their medical officers.

Congress of Hygiene of Habitations.—The United States Public Health and Marine-Hospital reports state that the International Congress of the Hygiene of Habitations was inaugurated at Paris, November 3, in the amphitheater of the school of medicine, being the first reunion for the purpose of technical engineers, hygienists, and representatives of the great cities. At the opening meeting the French minister of public instruction, M. Chaumie, presided and, in his address to the congress, called attention to the special importance of the regulation of dwelling places as a protection against contagious diseases. Senator Strauss reviewed the means at the disposal of engineers and architects based on the medical knowledge gained in the campaign against tuberculosis, a malady notably perpetuated and diffused by faulty construction of houses. He affirmed that it is to-day inexcusable for a government or municipality to fail to interest itself in the question of tuberculosis, a disease whose principal foci of contagion are found in insalubrious homes. Representatives of numerous cities, especially prominent being the envoys of Berlin and Prague, addressed the congress. A section of the congress devoted its attention to floating habitations, namely, ships of every kind.

Recent Decisions of the Prussian Medical Court of Honor.—One of the decisions was in respect to the sale of an ophthalmic practice. The court decreed that it is incompatible with a profession carrying with it such responsibility and founded on a basis of scientific training to have a medical practice transferred from one physician to another for a pecuniary consideration. Another decision was in the case of a Berlin physician who had an office at his residence in a suburb and another office in the city. The regulations state that a physician can not have an office in two places already provided with other physicians. This regulation was meant for small towns, and it was decided that it did not apply to an office in a city with a suburban home. In the present case the physician was intending to give up one office as soon as his practice in the other would warrant it. Another physician was fined for professional association with a charlatan, and another for writing a letter to a colleague in which he referred to a third physician as having made a blunder in diagnosing, and commented on his nervous instability and morbid ideas, concluding with the statement that the writer could no longer have any respect for him as a colleague. The court further decided in another case to impose a fine on a physician for carelessly signing a certificate. He failed to state that he had no personal knowledge of the preceding circumstances, but merely reported them from hearsay. A certificate made out in this way is incompatible with the honor of the profession, and the physician was fined the costs.

Medical Prizes Awarded at Paris.—The particulars of the prizes offered by the Académie de Médecine and Académie des Sciences at Paris have been given in full in these columns from year to year. Many thousands of dollars are thus distributed annually, the competition for nearly all the prizes being open to the world. Full details were given in THE JOURNAL Jan. 24, 1903. The reports show that few physicians from outside France compete for the medical prizes. The only non-Frenchmen among the recipients this year were Christiani of Geneva, whose work on thyroid grafting received a prize; Odier of Geneva; A. Raffray of Mauritius received the Godard prize for a work on neurology, and Muskens of Amsterdam received honorable mention in connection with another. The great Audiffred prize offered for the discovery of a sovereign remedy for tuberculosis is an endowed annual income of $4,800. The income was divided among several recipients this year, including A. Delille for his research on the toxins of the tubercle bacillus in tuberculous meningitis and in tuberculosis of the nerve centers; and Nattan-Larrier for his work on the cultivation of the tubercle bacillus by injecting suspicious fluids into the nipples of guinea-pigs suckling young. The bacilli colonize readily in the secretion where they can be easily detected, while the inoculation induces a tuberculous mammitis. Two prizes were awarded to A. Monprofit of Angers, vice-president of the Société de Chirurgie, for a work on surgical affections of the ovaries and tubes, which also received a prize from the other Académie. No articles were received in competition for five of the prizes, offered for the best work on cirrhosis of the liver, arteriosclerosis and nervous and malignant affections.

Student Life in Japan.—The *Journal de Méd. de Paris* quotes a letter from Professor Revon, who taught for years at Tokio, in which he states that the distinguishing characteristic of Japanese students is that they study hard and are very eager to learn. When the lecture is over there is always a group appealing for further light on certain statements. After the professor has left the room the entire body of students gather round this bolder group and take notes of what they have learned. He adds: "During seven years of teaching in Japan, my only solicitude was the excessive amount of study done by some of my pupils. I tried in vain to curb their zeal; one of them became insane and several died. At the funeral of one of them, one of their mates advanced to the grave and exclaimed: 'Thou hast died from the sacred love of science; we will try to imitate thee!' A student a few years ago, by some undeserved mischance, failed to pass his examination. He came to bid farewell to his teachers, on the point of committing suicidal autolaparotomy. The faculty hastily assembled and made out his diploma at once. The young men study so hard that they grow prematurely old, with spectacles on nose, candidates for consumption. The medical course requires from thirteen to fourteen years of study before the final license to practice freely is obtained, instead of the five or six years required in western civilization. The relations between professors and pupils are peculiarly intimate and affectionate. From childhood the maxim is impressed on them: 'Your father and mother are like the earth and the sky; the ruler of the state is like the moon; your teacher, like the sun.' Another familiar proverb may be translated: 'Education surpasses birth,' that is, education is worth more than ancestral lineage and wealth."

Campaign Against Malaria in Italy.—In view of the sanitary efforts that will be necessary to contend with malaria in Panama, a special interest from an American standpoint attaches to the campaign that is being vigorously pushed against this disease in the Roman Campagna, a section once thickly peopled, the site of prosperous cities, but now, owing to malaria, a desert waste, not more than one-tenth of which is under cultivation. The public health reports state that the first inroads of malaria in the once flourishing Campagna were attributed to the neglect of the cultivation of land incident to changed social conditions brought about by the decline of the Roman Republic. In the past great efforts have been made, both by the papal and the Italian governments, to induce cultivation of this vast area, but owing to unfavorable economic conditions little has been heretofore accomplished. When malaria begins in May the section is practically deserted. The shepherds with their flocks take refuge in the mountains. With the discovery of the relation of mosquitos to malaria a rational prophylaxis became possible. At present the railroad employes, whose occupation renders it necessary for them to remain at their posts during the unhealthy season, are protected by screened houses, mosquito masks, and prophylactic administration of quinin. In the month of October, 1904, in the seven zones of the Roman Campagna, where the Italian Red Cross Society is making its anti-malarial campaign, prophylactic doses of quinin were given to 2,433 persons, in addition to those whose treatment was begun in previous months. In the zones under observation there were reported, during the month, 13 primary cases of malarial disease, 88 relapses, and 62 cases of non-malarial disease. Thirty-four patients were sent to Rome for treatment in hospital.

The Approaching International Medical Congress.—The fourth official bulletin has been received of the fifteenth International Medical Congress, to meet at Lisbon, April 19, 1906. It states that the number of official addresses assigned is 188 and that some of them have already been received. We note a number of American names among them: Novy of Ann Arbor, H. U. Williams of Buffalo, A. E. Macdonald of New York, A. E. Regensburger of San Francisco, A. Ravogli of Cincinnati, W. C. Gorgas and W. J. Morton of New York. The American committee of propaganda includes Frank Billings of Chicago, W. W. Keen of Philadelphia, F. Shattuck of Boston, A. Jacobi of New York, and Osler of Baltimore, with the President of the American Medical Association, Dr. J. H. Musser, as the chairman. The list of members who have sent in their subscriptions is also published. The congress medal is being engraved by the Paris physician-artist, Dr. Richer. An interesting souvenir of the congress is being prepared in the form of a medical guide to Lisbon and Portugal, with all the details, regulations and statistics that can possibly interest a physician and serve for reference later. The subjects of the various addresses are also given with the names of the speakers. Von Leyden of Berlin will present the present status of the cancer question; Balthazard of Paris, radioactivity and radiotherapy; Lassar of Berlin, inflammatory skin affections; Ravogli of Cincinnati, the precancer stage in relation to cutaneous cancer, and Hallopeau of Paris, what he calls quaternary syphilis; Vulpius of Heidelberg, spinal paralysis, and B. Fränkel of Berlin, cancer of the larynx. The committee of organization beg that communications for the congress may be sent in at the earliest possible date so that they can be published with care instead of being rushed through at the last moment. New subjects recommended are dangers of milk, nocturnal incontinence, hysteria and infantile neurasthenia, dentition and infections, school strain, hydrocephalus, congenital malignant tumors and their operability, general and local anesthesia for children, influence of tropical climates on descendants of northern colonists, mutual influence of vaccination and dermatoses, and secondary cataract.

LONDON LETTER.

A New Departure in the Teaching of Tropical Medicine.

The great advances in tropical medicine made so rapidly in the last few years in this country have from time to time been chronicled in THE JOURNAL. The importance which the subject has now attained is shown by a new departure in its teaching—the foundation of lectureships in protozoology and helminthology at the London School of Tropical Medicine. Protozoology has assumed in tropical medicine such great importance and such wide proportions that it is thought to demand the services of men specially equipped to keep pace with its advances. The same may be said, if not with so much force, of helminthology. Hitherto these subjects have been included in the general laboratory work taught in the schools of tropical medicine, but the subjects have outgrown general instruction and demand special teachers, special classes and special investigators. Thanks to the schools of tropical medicine, the physicians trained in the methods of investigating tropical disease and working in tropical countries now number many hundreds and by their labors a still further growth in our knowledge of protozoology and helminthology is to be expected in the next few years. It is thought necessary to have an authoritative center at which all observations may be focused and sifted, which will require what we do not now possess, well-trained experts. Zoologists of eminence are not wanting in this country, but for one to cope with the demands of modern tropical pathology he must specialize. The conditions of appointment to each chair are identical. The teachers must give their whole time to the service of the school and occupy themselves with research work and must teach for one hour a day in the aggregate, if required. Candidates holding medical qualifications will be preferred. The appointments will be for six years. The salaries will commence at $1,250 and rise by annual increments of $250 to $2,500.

Sulphur Dioxid as a Disinfectant and as a Destroyer of Rats.

An important report on investigations conducted for the medical department of the local government board by Dr. J. S. Haldane, F.R.S., and Dr. John Wade, D.Sc., into the destruction of rats and disinfection on shipboard has been issued. The bulk of the experiments were made with sulphur dioxid in the form of "Clayton gas," a special preparation for the disinfection of ships obtained by burning sulphur in the Clayton apparatus. Clayton gas mainly consists of the residual nitrogen of the air, a small amount of unconsumed oxygen, sulphurous acid gas in quantities up to 15 per cent., and a considerable amount of sulphuric acid in suspension. The experiments show that the gas under conditions easy to obtain forms a very efficient disinfectant of places to which it gains access. Pathogenic bacteria manifested different degrees of resistance. Anthrax spores were unaffected, but plague and cholera bacilli were destroyed after a few hours' exposure to an atmosphere of the gas containing 5 per cent. of sulphur dioxid. In disinfection the time of exposure was found to be more important than the degree of concentration of the gas. Rats were readily killed. Drs. Wade and Pembrey have shown that .5 per cent. of sulphur dioxid will kill rats within two hours. Cockroaches and fleas are also killed under these conditions. These results were readily obtained in comparatively empty spaces and in holds not containing cargo The results obtained in holds containing a ship's cargo were altogether different. The penetrating power of sulphur dioxid was found to be very gradual for many articles of the cargo, particularly woolen and other fabrics (not cotton) done up in tight bales. This was shown to be mainly due to the power of the fabrics to absorb the gas. Thus, a bale of wool absorbed at least ten times and a bale of jute at least four times its own volume. The absorption takes place in the outer layers; after many hours the air within the bale contains no sulphur dioxid. Similar absorptive power was shown by grain and other food substances. A further objection to the use of sulphur dioxid is its liability to damage articles exposed to it. In a hold packed with cargo not only did it fail to act as a germicide, but owing to the absorption by bales, it was insufficient to kill rats and insects. Drs. Haldane and Wade suggest that if it is desired to kill rats before discharging the cargo, a small proportion of carbon monoxid (say 10 per cent.) should be added to the gas used for the hold. The best results would be obtained by unloading the cargo, with precautions against the escape of rats, and then treating the empty holds with sulphur dioxid.

The Centenary of the Royal Medical and Chirurgical Society.

The greatest of the London medical societies, the Royal Medical and Chirurgical Society, was founded on May 22, 1805. The council has decided to celebrate the centenary in May next in a manner worthy of the occasion. There will be a reception at the society's rooms by the president, and an exhibition of books, prints, instruments, etc., published or in use at the time of the foundation of the society. A centenary volume will be published giving a narrative of the society and its work. There will be a festival dinner and a conversazione at the Royal College of Surgeons.

The New Director General of the Army Medical Service.

A new departure has been made by the appointment to the important post of director general of the army medical service of a comparatively junior officer. This is connected with the recent radical changes made in the service after the inquiry into the so-called "hospital scandals" of the South African War, and the appointment no doubt has the approval of, if it has not been inspired by, the advisory board of distinguished civil doctors which has recently been created. The new director general is Lieutenant-Colonel Alfred H. Keogh, an Irishman, who joined the service in 1880 and became lieutenant-colonel in 1890. He greatly distinguished himself as an organizer in the South African War, for which he received several decorations, and at headquarters, where he acted as a deputy to his predecessor.

New Expeditions of the Liverpool School of Tropical Medicine to West Africa.

On the occasion of the recent retirement of Sir William Macgregor (who is a medical man), from the post of governor of Lagos the Liverpool School of Tropical Medicine decided to mark their appreciation of his valuable services in the cause of health and sanitation in West Africa by sending further commissions to continue the investigations conducted there by the school for the past five years into tropical diseases. A fund was accordingly raised in honor of Sir William Macgregor at a farewell banquet given to him before his departure to Newfoundland, of which he has been appointed governor. The first expedition will be under the charge of Professor Boyce, the dean of the school. He will be accompanied by Dr. Arthur Evans, medical superintendent for one of the large Liverpool shipowners and by Dr. Clarke. The expedition will pay a short visit to the Gambia, French territory (Konakry), and Sierra Leone. A southern expedition will be in charge of Colonel Giles, late sanitary commissioner of the northwestern provinces of India, and Dr. R. E. MacConnell of McGill University. It will visit the Gold Coast, Lagos, Southern Nigeria and, if possible, Northern Nigeria. The principal object of the expedition will be to study the distribution of biting insects, to which in Africa a large proportion of the prevalent diseases are due, and to study the question of domestic antimalarial measures in the various colonies. At the present time, as announced in THE JOURNAL, the Liverpool school has an important expedition studying sleeping sickness in the interior of the Congo Free State, which has been there since August, 1903. Next year the school will send an expedition to the Amazon to study yellow fever, which is the second expedition it has sent for the purpose. Thus its enterprise is phenomenal, but the possibility of all these expeditions is largely due to the munificence of Sir Alfred Jones, president of the school, a wealthy Liverpool merchant who has contributed liberally. A deputation consisting of Sir Alfred Jones, Professor Boyce, Dr. Evans, Dr. Clarke, Colonel Giles, Dr. MacConnell of Canada, Dr. Thomas of Canada, and Dr. A. Breinl of Prague, waited on the colonial secretary for the purpose of securing his good wishes for the expeditions, which were readily given. The expenses of the expeditions have been entirely defrayed by subscriptions of Liverpool merchants.

DUBLIN LETTER.

A Workhouse Scandal.

A shocking state of affairs was brought to light recently in the North Dublin Union by one of the local government board's inspectors, Dr. Biggar. Into the nursery of that institution during the three years ended June 30, 1904, about 1,000 infants under 2 years of age were admitted, 396 of whom died, or two out of every five. An examination of the premises occupied gave an explanation of the mortality. These miserable children, of whom there are generally from 60 to 70 at a time, are packed into rooms insufficient for the number, ill-ventilated and foul smelling. The staff maintained to take charge of this nursery consists of one sister and two attendants (not nurses), with the assistance of six or eight inmates. The principal ward has practically no ventilation except by skylights, and the inspector states that the air therein had a very foul smell. It is stated, too, that the site of these dens which constitute the nursery was to begin with, unsuitable, since they are built on a disused graveyard. The children who are admitted to a union workhouse in this country are usually in anything but a healthy condition. Many are foundlings or illegitimate, and nearly all are suffering from the effects of poverty or of neglect. Many are actually ill. Such infants, instead of being herded together without either air or care, require, if they are to have any chance of healthy lives, strict medical attention and the best hygienic surroundings. Without the odium arising from the publicity of Dr. Biggar's report there is little reason to think that the North Dublin guardians would have paid any attention to the matter. After many postponements the guardians have at length adopted certain suggestions, which, though far from giving an adequate solution to the problem, will afford a temporary relief. As, however, the present winter is accompanied by much distress in Dublin, it is probable that the accommodation of the workhouse will be taxed to its utmost before the winter is over.

Richmond Asylum.

In view of the alarming increase of lunacy in Ireland, to which allusion was made in the last Dublin letter, the recent report of the Richmond District Asylum is particularly interesting. This asylum, the largest in this country, contains about 2,700 patients, and has for medical superintendent the well-known alienist, Dr. Conolly Norman. The number of patients under treatment continues year by year to increase, though the actual number of admissions last year was the same as in 1902. The cases admitted were mostly of an unfavorable nature as regards prospect of recovery, many of them being afflicted with what are regarded as incurable types of mental disease. Suicidal tendencies were more marked than usual, and several patients who feared suicide presented themselves as voluntary patients. Dr. Norman is a believer in a freer mode of treating the depressed than is usual in these countries, and he is to be congratulated that no successful attempt at suicide was made. It must, of course, be remembered that in no asylum in the United Kingdom is there so much freedom given to patients as is customary in America. Dr. Norman holds much the same views as Dr. Coulston of Edinburgh on the importance of alcohol in the causation of insanity, and we find that one-third of the cases where any cause has been assigned are credited to this cause. On the other hand, in the column headed "sexual intemperance" there is not a single entry. Hereditary influences were made accountable in 82 cases. The mortality of the asylum during the year was not unduly high, 7.9 per cent. of the average number of patients, but some of the causes seem to be capable of diminution. Phthisis especially is responsible for a larger number of deaths than should occur if modern preventive and therapeutic measures are practiced. It is interesting to note the variety and number of the industrial occupations in which it has been found possible to engage the great majority of the patients. All the clothes worn in the asylum have been made on the premises, and the stuff itself has been woven there. One can hardly think of any occupation from chimney-sweeping to "drawn-thread work," from blacksmith's work to embroidery, in which some of the patients are not employed.

Correspondence.

Modern Hospital Asepsis from an Interne's Viewpoint.

CHICAGO, Dec. 21, 1904.

To the Editor:—It seems almost superfluous and uncalled for to try to bring out anything more relative to asepsis in the modern hospital and operating room of to-day, but with the exception of a hint of them now and then to be seen in various articles in some of the later journals, no one has touched on two or three points that should be strongly emphasized and criticised, and the causes of which should be eliminated in order to get better aseptic surgical results.

One would think on close examination of one of the newer operating rooms that every precaution had been taken, that every means known to bacteriology had been or was constantly being employed to destroy the bacteria that had already gained entrance to the operative field and its environment and to prevent any further contamination. The room as a whole is built so that every square inch of its floor, walls and ceiling can be cleaned. There are no corners or ledges for dust or dirt to lodge or which are inaccessible to the frequently appearing scrubbing brush. Marble, iron, stone, tiling, enamel, glass and nickel are used exclusively in the make-up of the room and its necessary furnishings, not so much for the durability of such materials, but in order to obtain smooth surfaces which can be easily cleaned—surgically cleaned.

Everything that is brought into the room is surgically clean. The tables are scrubbed, washed with antiseptic solutions and covered with covers that have been sterilized. The basins, towels, sponges and instruments have all been baked, steamed or boiled. Only nurses specially trained in asepsis and antisepsis and in the reasons and necessity for the same, make the operating room ready for an operation and assist during it. In the dressing rooms are to be found scientifically arranged wash basins where hot and cold sterile water, sterile soap, sterile brushes and antiseptic solutions can be used without the necessity of touching anything that is not clean. Sterile gowns are put on, sterile gloves are at hand to cover the hands and sterile masks are ready to protect the open wound from the pathogenic bacteria that are present in such large numbers in our mouths and nostrils.

It certainly would seem improbable, yes, almost impossible, for clean wounds to become unclean in such an operating room, fitted with every appliance known to prevent it. But they do become unclean, wounds do become infected, clean hernias frequently must be "dressed" for days after the operation, single iridectomies do occasionally result in suppurating panophthalmias, ventral "suspensions" do become "fixations" after weeks of irrigation of purulent sinuses leading down to peri-uterine abscesses. Stitch abscesses do only too frequently occur. "Oosings" which are "only serum" do appear after interval, clean appendectomies. Redness and induration do occur even after the much abused poor, innocent catgut has been really and truly sterile.

And why?

It is not always due to some error in aseptic technic done behind the screen in the ward by the usually extremely careful nurse during the preparation of the patient, nor is it always due to the junior interne who, fresh from books on aseptics, is anxious to be known as a careful man in his preparation of the patient. It is not always because the bandage slipped up while the patient was being transported to the operating room from the bed. It is not always because the senior assistant interne has become careless because he is soon to leave the hospital. It is not always due to the fact that this or that unscrubbed nurse "touched things" about the sterile field. It is not always due to any peculiar affinity between bacteria and catgut, and it is not always because the "fool patient stuck his finger under the eye-pad to stop the itching."

But such unnecessary and inexcusable infections do occur and often, too, in our best hospitals and in our most carefully managed operating rooms. It seems to me that the real cause lies not with the hospital operating room, internes or nurse, but with the surgeon himself, the operator, the teacher and professor of aseptic surgery, and simply because he does not really do what he teaches others to do, what he believes should be done, and what he doubtless for the most part thinks he does do.

He says to the class, "Scrub hard for fifteen or twenty minutes," and then he comes hurriedly to the clinic and scrubs but two or three, in spite of the fact that he knows very well that he can not put on sterile gloves with unclean hands. He says, "To obtain aseptic surgical results you must not only make clean, but you must keep clean," and within a few moments he has literally removed his glasses with his sterile glove, or has traced a drawing on a blackboard and then, with not so much as a dip into the bichlorid solution, takes up the iridectomy knife to remove the cataract.

He says to the assistant. "While you are in my service do not go to the autopsy room," and yet he will come directly to an operation from the dissecting room himself.

Teachers of surgery—leading clinicians of to-day—can be seen daily grossly breaking the fundamental rules of asepsis in all our leading clinics and hospitals. They are very exacting about others and then very careless about their own behavior. The first is excellent, the last is unpardonable. The more strict with nurse and interne they are the better, but they must not expect the nurse and interne to remain enthusiastic about absolute surgical cleanliness when they see him—just because he is late or in a hurry, or for no reason whatever—neglect to do what he demands of them.

It is not necessary to go more into detail. Scores of such instances of aseptic lying are noticed by an interne during his year or two of service relative to some of our best operators. The same operator should know he is constantly watched, looked up to, listened to and gladly followed just so far as he is true to surgery and to himself, and criticised and ridiculed just so far as he blames nurse, interne or catgut when it is only too evident that he himself has been the cause for failure of primary union. JOHN C. HOLLISTER.

Urination in the Dorsal Position.

LANCASTER, PA., Jan. 3, 1905.

To the Editor:—The inability to void urine lying down is common to many people even in health. By practice this may be overcome; rather easily when the half reclining position may be assumed, and the ability to urinate in the dorsal position gradually acquired. The patient usually has the joy of learning the technic of dorsal urination with added zest from postoperative pain and ether nausea.

I have found it of distinct advantage to have all patients who will have to void in the dorsal position practice this often before the position is necessitated, when time permits. In obstetric cases I order the morning urination on the douche pan during the last month of pregnancy until the knack is thoroughly acquired. In operative cases advantage is taken of every opportunity during preparatory treatment. I have had no patient who learned to void before operation who could not void afterward, excluding, of course, obstetric cases in which there had been much pressure on the urethra, and operative cases involving the region of the urethra or rectum.

Where the physician is so situated that he must either catheterize the patient himself or must trust to untrained assistants any help to make a patient void is of great value. Under the best surroundings there is danger in catheterizing. Patients readily see the value of this practice and are glad to adopt it. I have found that the procedure saved me a very great deal of trouble. JOHN L. ATLEE.

Sarcoma of Intestines.

RIVERSIDE, CAL., Dec. 30, 1904.

To the Editor:—Five years ago I removed from Harold S. a small round-celled sarcoma with several inches of intestine, from which it originated. The case was reported

Journal, March 9, 1901, under the title "Sarcoma of the Intestines with Table of Fifteen Cases of Resection." A few weeks ago I visited this patient, now as well developed and as robust a boy of 10 as one often sees. I found no evidence of trouble about his abdomen or lymphatics, nor anywhere, in fact. The only effect traceable to the operation was a little more frequency of bowel movements than normal, but this never amounted to a diarrhea; usually there were one or two movements a day. In view of the fact that although a number of enlarged mesenteric glands were of necessity left in the abdomen and that there was no return of the growth some very interesting questions are suggested. Were the glands that were left in the mesentery real sarcomatous foci? Has the organism a certain amount of power to overcome a sarcomatous "infection"? Is there a benign growth which so nearly resembles sarcoma that experts fail to distinguish it?

C. Van Zwalenburg, M.D.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ERRORS IN VON BERGMANN'S SYSTEM OF SURGERY.

Winfield, Ark., Dec. 31, 1904.

To the Editor:—On page 17, vol. iv, of von Bergmann's System of Surgery, by Bull, I notice what might be construed a great mistake. On lines 10 and 11 it is said to use a tube 10-15 cm. Does it mean ten-fifteenths or ten and fifteen one-hundredths cm.? On the same page the bifurcation of the esophagus is spoken of. Chevis Bevill.

Answer.—It is very evident that the "10-15 cm." on page 17 of vol. iv of "Von Bergmann's System of Surgery" by Bull, is a mistake, as it should be "10-15 mm." The term "bifurcation" on the same page refers not to a bifurcation of the esophagus, but to the bifurcation of the trachea. The word trachea might have been inserted to advantage and the sentence would have been relieved of all ambiguity.

SERUM TREATMENT OF CANCER.

Gulfport, Miss., Dec. 18, 1904.

To the Editor:—Have there been any favorable developments in experiments on serum treatment of inoperable cancer of the uterus? If so, please give me any information available as to where or how I may obtain the serum. R. C.

Answer.—There is at present no recognized serum treatment of cancer. Doyen of Paris, France, claims to have a serum which he is using in the treatment of inoperable cancer, and has recently obtained considerable newspaper notoriety concerning it. Metchnikoff has recently reported on the matter in the French medical press. The serum is obtained from the *Micrococcus neoformans*, which is supposed by them to be the cause of cancer. It has not yet been established either that the organism mentioned is the cause of cancer or that the serum possesses any curative properties. The serum is not obtainable here, so far as we know. See also page 145.

Marriages.

William G. List, M.D., Cincinnati, to Miss Martha White, December 20.

Julius Propper, M.D., to Miss Gizelle Propper, both of Philadelphia, December 29.

William Pepper, M.D., to Miss Mary Godfrey, both of Philadelphia, December 31.

Edwin D. S. Mullison, M.D., Philadelphia, to Miss Fannie W. Warren of Wrightstown, N. J., December 31.

George Johnson Tompkins, M.D., to Miss Elizabeth Haskins Dillard, both of Lynchburg, Va., December 28.

Walter L. Bond, M.D., West Somerville, Mass., to Miss Bertha B. Fennell of Everett, Mass., Nov. 2, 1904.

Talbert B. Ginn, M.D., Hesselton, Ky., to Miss Mattie Hillis of Vanceburg, Ky., in Cincinnati, December 16.

Deaths.

Byron Cook Pennington, M.D. Jefferson Medical College, Philadelphia, 1881, fourth vice-president of the American Medical Association; president of the medical staff of, and surgeon to the Atlantic City Hospital; president of the Atlantic City Academy of Medicine; several times president of the Atlantic County Medical Society; for two years and a half surgeon in the merchant service between New York and Brazil; a member of the Atlantic City council, died at his home in Atlantic City, N. J., January 1, from uremia, after a long illness from interstitial nephritis, aged 46. In recognition of the personal and professional integrity and ability of Dr. Pennington the physicians of Atlantic City united last October in presenting to him a silver loving cup. He was chairman of the general committee of arrangements for the American Medical Association session of 1904.

Eber K. Watts, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879, a member of the American Medical Association and of the Wayne County (Ind.) Medical Society, some-time coroner of Wayne County, for 18 years a practitioner of Richmond, Ind., died suddenly while attending a consultation near Westville, Ohio, January 3, from uremia, aged 45.

Arthur C. Adams, M.D. Medical Department of Columbian University, Washington, D. C., 1873, a member of the American Medical Association, shot himself at his home in Washington, December 31, and died at Providence Hospital early on January 1, aged 50.

Robert H. Somers, M.D. Toronto University Medical Faculty, 1896, a member of the American Medical Association, one of the most popular physicians of Plymouth County, Iowa, died at his home in Lemars, January 3, after an illness of one week from pneumonia.

Hiram W. Young, M.D. Medical Department of Washington University, St. Louis, 1901, of St. Louis, was drowned by the upsetting of a gasoline launch in which he was making a cruise to Florida, about 25 miles below St. Louis, December 30, aged 33.

Calvin H. Kendall, M.D. Berkshire Medical College, Pittsfield, Mass., 1843, one of the first to employ nitrous oxid gas as an anesthetic in the extraction of teeth, died at his home in Ridgefield, Conn., Nov. 30, 1904, from uremia, aged 87.

Arthur T. O'Hara, M.D. University of Buffalo Medical Department, 1890, for 13 years physician and superintendent of the Buffalo Quarantine Hospital, was found dead in that institution January 1, from heart disease, aged 43.

Joseph Bartley Patrick, M.D. Medical Department of Western Reserve University, Cleveland, 1886, of Baldwin, Wis., died in St. Luke's Hospital, St. Paul, Minn., December 30, from post-operative pneumonia, aged 48.

Frederick H. Griffin, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880, committed suicide at his home in Philadelphia, January 1, by inhaling illuminating gas, aged 48.

Shorland Harris, M.D. Exeter College, England, 1852, a surgeon in the Crimean War, died at his home in Mason City, Iowa, January 1, from cerebral hemorrhage, after a short illness, aged 75.

Evan F. Smith, M.D. Medical Department of the Columbian University, Washington, D. C., 1878, died at his home in Brooklyn, N. Y., from influenza, after a short illness, January 3, aged 53.

Joseph L. Richard, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, died at his home in Donaldsonville, La., December 31, after a short illness, aged 56.

John G. Lee, M.D. University of Louisville Medical Department, 1865, died at his home near Lasca, Tenn., December 24, from paralysis after an invalidism of eight years, aged 75.

Emory F. Gresham, M.D. Hospital College of Medicine, Louisville, 1892, died at his home in Sedalia, Mo., December 28, from brain tumor after an illness of several weeks, aged 35.

Amos C. Wood, M.D. New York University, New York City, 1855, the oldest practitioner of Owensboro, Ky., died at his home in that city, January 2, from heart disease, aged 80.

Gustavus A. Rene, M.D. Medical College of the Pacific, San Francisco, 1872, of San Bernardino, Cal., died at the hospital in that city, December 23, after a long illness, aged 63.

James E. Jones, M.D. Albany (N. Y.) Medical College, 1855, for 45 years a resident of Clayville, N. Y., died at his home near that village, December 25, aged 72.

James M. Eagleton, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, died at Ocala, Fla., January 4, from heart disease, aged 70.

Harry Lewis Hamilton, M.D. California, 1891, died at his home in Chicago, Cal., December 30, from spinal meningitis, after an illness of 36 hours, aged 33.

Frank E. Yerkes, M.D. Pennsylvania, 1894, died at his home in Ambler, Pa., December 16, after an illness of four days, from erysipelas, aged 38.

Hector S. Aley, M.D. Rush Medical College, Chicago, 1885, died at his home in Denver, Colo., December 9, from pernicious anemia.

David M. Shively, M.D. Indiana State Board, 1897, died at his home in Yorktown, Ind., from nephritis, January 3, aged 63.

Thomas A. Pierce, M.D. Philadelphia, 1850, died recently at his home in Winona, Minn., and was buried January 7.

Book Notices.

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS. A Guide for Practitioners and Students. By Dr. Toby Cohn, Nerve Specialist, Berlin. Translated from the Second German Edition and Edited by Francis A. Scratchley, M.D., New York, Chief of Clinic, Diseases of the Nervous System and Instructor in Electro-Diagnosis and Electro-Therapeutics, University and Bellevue Hospital Medical College. With Eight Plates and Thirty-nine Illustrations. Cloth. Pp. 250. Price, $2.00. New York and London: Funk & Wagnalls Co. 1904.

This book presents the underlying scientific principles of electrodiagnosis and electrotherapeutics. It also explains the apparatus necessary for the use of electricity in the disorders where it is indicated. The book is conservative in spirit and has reached a recognized standing in Germany.

A TREATISE ON APPLIED ANATOMY. By Edward H. Taylor, M.D. (Dublin Univ.), F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital. Illustrated with 178 Figures and Plates from Original Drawings, Many Printed in Colors. Cloth. Pp. 738. Price, $9.00. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott Co. 1904.

The author's "object has been to provide an account of the regional anatomy of the human body in its more important applications to medicine and surgery." This has been so well done that nearly every point in anatomy has been intimately connected with some practical point in medicine or surgery so that the reading of the work has been made not only instructive but a pleasure. The work contains almost as much surgery as anatomy, and the illustrations, many of which are colored, are all very good. It is a good work and one which can be consulted with profit not only by the student but by the operating surgeon.

NEW METHODS OF TREATMENT. By Dr. Laumonier. Translated and Edited from the Second Revised and Enlarged French Edition by H. W. Syers, M.A., M.D., Cantab., Physician to Out-patients Great Northern Central Hospital. Cloth. Pp. 320. Price, $2.50 net. Chicago: W. T. Keener & Co. 1904.

This book is of peculiar importance in that it takes up and discusses the relative value of the more important newer remedies of the vast number which have been placed on the market. As a rule, the general practitioner gains his acquaintance with these newer remedies only in published formulas and prescriptions which in many instances gain their entrance into medical literature through the advertising columns. The author divides the several preparations into groups according to their actions and uses, including in this classification nutritive alterants, blood alterants, mineral medication, respiratory alterants, renal alterants, vasomotor alterants, opotherapy, serotherapy, nerve alterants, antipyretics and antiseptics. Space can not be given to the discussion of these different groups. To the physician who wishes a more thorough comprehension of the relative value of the newer preparations than can be obtained in the current literature, this book can be safely recommended.

THE PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lon.), F.R.C.S. (Eng.), Assistant Ophthalmic Surgeon, University College Hospital. Vol. I. Histology—Part I. Cloth. Pp. 388. Price, $3.50 net. New York: G. P. Putnam's Sons. 1904.

This is the most complete work of its kind ever undertaken in any language. Even in Germany the "Ginsberg Manual" is the only book which may be said to compare with Mr. Parsons' work. The first volume by its excellence promises much for those that are to follow. The work presents more than its title indicates; it abounds in practical applications of pathology to the surgery and treatment of eye diseases. In discussing a given condition, in addition to its pathology and histology Mr. Parsons has collected the theories and opinions of the world's authorities and has most successfully welded them into a very practical, homogeneous whole. Many of the more valuable of the late methods of laboratory technic are also given. The illustrations are taken chiefly from photographs, another good point, since the advanced student no longer needs schematic drawings, but prefers to see things as they really are to be seen under the microscope. There might, with advantage, be many more illustrations, and especially those in color, none of the latter appearing in the first volume. The binding also is inferior, especially for a work which is of such value that it can not fail to be in constant use.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-graduate Medical School. Vol. VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology, Suggestive Therapeutics, Forensic Medicine. Edited by George F. Butler, Ph.G., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel R. Brower, M.D., Harold N. Moyer, M.D., July, 1904. Volume IX. Physiology, Pathology, Bacteriology, Anatomy, Dictionary. Edited by W. A. Evans, M.S., M.D., Adolph Gehrmann, M.D., William Healy, A.B., M.D., August, 1904. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases. Edited by W. L. Baum, M.D., Hugh T. Patrick, M.D. September, 1904. Chicago: The Year Book Publishers.

Volume VIII keeps up the standard that has been maintained by this valuable series. Butler's review of materia medica and therapeutics is especially full, occupying nearly one-half of the volume, and seems to give a very complete résumé of the advances that have been made during the year covered. Favill's review of Preventive Medicine is also judicious and thorough, and the same may be said of the section on climatology by Bridge and Claypole, and those on suggestive and forensic medicine, respectively, by Brower and Moyer. The editors have given us well-selected abstracts and the excerpt affording a fair résumé of the general advances made during the year. Volume IX covers much ground, but the material has been well selected, thus making one of the most valuable books of the series. W. A. Evans reviews anatomy and pathology, including general and special pathology. A. Gehrmann has charge of the section on physiology and bacteriology, considerable space being devoted to biochemistry and serum reaction, and Wm. Healy has compiled the dictionary of new words, which embraces twenty-two pages of nonpareil type. Volume X covers only two subjects, cutaneous and venereal diseases, by W. L. Baum, including genitourinary medicine and surgery, and nervous diseases by Patrick and Mix. Both are able and comprehensive critical reviews of the advances made during 1903 and cover a considerable portion of the literature of their respective subjects. The portion on mental diseases is rather brief, but the papers abstracted are well selected and the critical remarks of the editor are valuable as conveying judicious opinions on certain special points.

SURGICAL EMERGENCIES. THE SURGERY OF THE ABDOMEN. Part I. Appendicitis and Other Diseases. About the Appendix. By Bayard Holmes, B.S., M.D., Professor of Surgery in the University of Illinois. Paper. Pp. 349. Price, $2.00 net. New York: D. Appleton & Co. 1904.

The author states that his volume of 350 pages is a part of "A Text-Book of Surgery for Practitioners of Medicine." As a text-book article, there is much in it that could be eliminated and much that could be condensed with advantage, particularly on the subject of appendicitis, for the complete title of the work is "Appendicitis and Other Diseases About the Appendix." With some of the author's statements we can not agree; for instance, "The examination of the patient forms only a small part of the material on which the diagnosis (of appendicitis) is made." On the contrary, the physical examination of the patient plays a very large and important part in the diagnosis in a large proportion of the cases. The statement that "The appendages of the intestinal tract, especially the appendix vermiformis, the gall-bladder, and Meckel's diverticulum are traps laid for the purpose of catching and disseminating infection," might pass in a figurative sense, but when unqualified, as it is here, is not good in a text-book. The formula given for Schleich's solution on page 209 is incorrect, as it contains too much morphin, and Schleich does not use "normal salt solution." The statement on page 241 that "Ideal appendicectomy ought not to require an incision longer than an inch in the thin and an inch and a half in the fat patient; it ought not to require more than fifteen minutes of general anesthesia nor more than four or five days in the hospital and away from work or business" is pernicious in more ways than one. The incision should be long enough to permit the necessary work to be properly done regardless of the tape measure. Good work in many cases cannot be done through an inch incision. No patient who has had the abdomen opened and work done on the intestine should be permitted to leave the hospital and to resume his work or business in four or five days. The process of repair requires time and until repair is reasonably complete accidents may happen, and a surgeon is not justified, under ordinary circumstances, in permitting his patients to take the risk of returning to work. The author's views concerning the desirability of early operation and the very earnest and forceful manner in which he presents his arguments therefor are commendable. The "other diseases about the appendix" treated are peritonitis, intussusception, perforating typhoid ulcer and carcinoma of the intestinal tract. These are not so extensively dealt with as is appendicitis. Although one will find a number of statements to which one can not subscribe, still the work as a whole forms an interesting and instructive monograph, written in a very positive style.

THE ACTION OF LIGHT AS A THERAPEUTIC AGENT. By Leonard K. Hirshberg, Baltimore, Md. Fiske Fund Prize Dissertation. Cloth. Pp. 49. Providence: Snow & Farnham. 1904.

ROENTGEN-RAY DIAGNOSIS AND THERAPY. By Carl Beck, M.D., Professor of Surgery in the New York Postgraduate Medical School and Hospital. With 322 Illustrations in the text. Cloth. Pp. 460. Price, $4.00. New York and London: D. Appleton & Co. 1904.

LIGHT ENERGY; Its Physics, Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M D, Fellow of the New York Academy of Medicine. With Numerous Illustrations in the Text and a Frontispiece in Colors. Cloth. Pp. 827. Price, $5 00 net. New York and London: Rebman Co 1904.

The number of books dealing with the various forms of radiant energy and their application to medicine is increasing rapidly. One of the first books in this field which has proved so productive of literary activity was that of General Pleasanton on "The Influence of the Blue Ray of the Sunlight and of the Blue Color of the Sky in Developing Animal and Vegetable Life in Arresting Disease and in Restoring Health in Acute and Chronic Disorders to Human and Domestic Animals," published in Philadelphia, 1877. The general's book was printed with blue ink and bound in blue. This led Finsen to suggest that "its contents could hardly fail to be colored also," a remark not without reason in view of General Pleasanton's tendency to regard blue light as a panacea. Of the three books at present noticed, the first may be dismissed with the statement that it was deemed worthy of the Fiske prize. It contains nothing particularly new. Dr. Beck's book on the Roentgen ray is marred by the introduction of *many* unnecessary details especially concerning individual cases. Numerous and often poorly made illustrations have been inserted; those of microscopic sections are wholly worthless. There is a tendency, it would seem, to stretch the efficacy of the *x*-ray to the utmost, as noticed for instance, in the following statement in speaking of one case of scarlatinal noma: "It seemed that after strong irradiation the process was checked." On the whole, no very serious attempt is made at careful, critical analysis of the diagnostic and therapeutic value of the *x*-ray on the basis either of the author's own material or that of others. The book is consequently not stimulating in its tone, although, of course, it contains much valuable information. Dr. Margaret A. Cleaves presents a more comprehensive work of its kind, in which she endeavors to embody the results of eleven years of study and practical experience. She does not consider fully the *x*-ray except more or less incidentally. The fundamental physics are considered at length. Dr. Cleaves has chosen as her aim the placing of light energy for general therapeutic purposes on a foundation as secure and scientific as that which the brave Finsen provided for its use in diseases of the skin. This is an ambitious undertaking, but the author has proceeded in the only way that leads on to its successful realization, namely, by critical study of all available material before drawing any conclusions. We believe this book may be recommended to those who wish to have on hand an able and conscientious discussion of light in its physical, physiologic and therapeutic aspects.

Miscellany.

GREAT INACCURACIES IN THE DOSAGE OF POTASSIUM IODID IN SATURATED SOLUTION.

Dr. William Healy.

CHICAGO.

Discussion between a druggist and a patient who thought he was not getting his regular amount of potassium iodid in solution led me to note an inaccuracy in the usual making up of the saturated solution. Later, in conversation, Dr. H. T. Patrick called my attention to a still greater error; namely, that most physicians regulate the dosage of this frequently prescribed solution as if one drop of the solution equaled one grain of the drug. I had always done so on the authority of Hare (Practical Therapeutics, ed. 1897, p. 225). This is far from being the truth. In proving up this matter on a practical basis, as I have done in company with two expert pharmacists, I note even a third possibility of error in dosage—the content of the domestic teaspoon.

The standard pharmacopeial authorities state that potassium iodid is soluble in .75 parts water, standard temperature C. 15, F. 59. I find that on this authority it is common for druggists to simply add these properties in making the saturated solution. Now waiving the point as to possible difference of solubility varying with different methods of manufacture, and working with granulated potassium iodid, such as druggists ordinarily carry, I find that potassium iodid ʒiv added to distilled water ʒiii gives a mixture of ʒivss. This, however, at room temperature, F. 70, is not a saturated solution. Almost another dram of potassium iodid can be dissolved, bringing the mixture then up to ʒiv, m. i, practically one grain to the minim.

Now with regard to drops: I find them, as Dr. Patrick asserted, very small, indeed. Since it is almost impossible to drop the solution over the neck of a bottle, a medicine dropper is ordered. *Using the common straight dropper 60 drops* is found to equal only from 28 to 40 minims. From an eye pipette sold at some places as a medicine dropper 60 drops equals from 46 to 49 *minims. Sixty drops from a thin glass* beaker equals 28 minims and from a small graduate equals 39 minims.

Then, investigating the household measures, I find that what the laity considers a teaspoonful of the solution in question contains from 85 to 95 minims. How ludicrously inaccurate these various methods of dosage are is shown by their comparison. For instance, if one prescribes the 60 pipette drops fondly supposed to be a dram of the so-called saturated solution he is giving only about 41 grains of potassium iodid, or if he orders a teaspoonful, also thought of as a dram, he may be giving 90 grains—over twice as much. Or putting it in another way, the teaspoonful contains about 120 pipette drops.

Summarizing these various difficulties it appears, then, that when using the thoroughly saturated solution, *dropped from a* pipette, there is an error of at best 25 per cent. and when given by the teaspoonful of 33 per cent. Or, if properly measured by minims, the druggist's mixture *may involve a difference of* 12 per cent. In giving the large doses over the prolonged periods, which so frequently has to be done, it would be distinctly worth *while to know what we are doing.* As *it stands*, with most of us, when we think we are giving, say, 120 grains we may really be giving 110 grains or 90 grains, or ,160 grains. Evidently the only way to be even approximately accurate is to prescribe potassium iodid in solution *completely* saturated and measured for dosage, as it may be more rapidly and conveniently than by the pipette in a minim graduate.

1682 Sheridan Road.

Expert evidence is not evidence of fact, it is evidence of opinion based on scientific knowledge. Medical men give evidence of fact when they speak in the witness-box as to physical conditions which have come under their actual observation; but when they draw inferences from those conditions as to the duration of injuries, as to the amount of incapacity produced, or as to the cause of them so far as these points lie outside the limits of their knowledge, they then become expert witnesses.—*Lancet.*

Alcohol and Hypnotism.—Russian physicians are treating alcoholic cases by hypnotism, according to the *Gazette Médicale de Paris*. The first dispensaries for the treatment of alcoholism by hypnotism were used in 1896 in the psychiatric clinic of Moscow, and in 1891 at the hospital of Ijevo. Since then many establishments of the same kind have been started at Ekaterinislav, Voronege, etc., and all have given excellent results. According to the studies of Dr. Rybazoff the treatment of alcoholic cases by hypnotism has given 75 per cent. of radical cures, while all the other known methods have never given more than 30 per cent.

Doyen's Cancer Serum.—According to the *Semaine Médicale*, Doyen formally reports that Metchnikoff has obtained pure cultures of the *Micrococcus neoformans* in 41 out of 121 tubes inoculated with cancer material. The colonies were most numerous in material from the more malignant tumors. Doyen claims that 15 patients with cancer, inoperable in October, have been so much improved by his serum treatment that surgical intervention was rendered possible, and was successfully done. Two cancers of the breast, he claims, subsided completely under the treatment, which allowed the removal of an advanced tumor on the other breast. Before the Paris Société de Chirurgie, December 14, Doyen exhibited these and 8 other patients with advanced cancers whom he proposes to treat with his serum and to operate on later.

Consanguinity in Genesis of Deafness.—M. Natier of Paris has recently reported 2 cases of deafness coming on in the twenties in two sisters, whose parents had been cousins. The deafness is bilateral, progressive and accompanied by subjective symptoms, and has proved rebellious to all treatment. He has been very successful in other cases of deafness—sometimes in cases incurable by all other means—by re-educating the ear with acoustic exercises with tuning forks. He calls this the physiologic re-education of the ear, and states that if used early in encroaching deafness, it will ward it off. The general health must be kept in good order at the same time. His communication on the subject was read at the recent French Congress of Internal Medicine, and is published in the *Gazette Méd. de Paris*, November 5.

Hydrophobia in Berlin.—The German authorities have published a report of those in Berlin bitten by suspected mad dogs during 1903. During the year 307 persons were bitten by dogs supposedly mad. Rabies was conclusively demonstrated in 140 of the dogs. Of the 307 persons bitten, 281 (or 1.5 per cent.) received the Pasteur treatment. Of these only 4 succumbed, and one is reported to have recovered after the appearance of the symptoms of the disease. Of those not treated by the Pasteur method, but receiving other medical treatment, 6 per cent. died of the disease, and of those receiving no treatment whatever, 11 per cent. Allowing for the fact that a large proportion of patients bitten by supposedly rabid dogs do not develop the disease, the fact that four times as many recover after the Pasteur treatment as after other medical treatment, and nine times as many as after no treatment at all, is worth considering. Hydrophobia is probably the most terrible acute disease known to man. Fortunately, it is rare. Once well developed, it is practically incurable, though the one case reported in the Berlin statistics as recovering encourages a slight hope that even more may be done in the future.

The Bone Marrow as a Protecting Organ Against Infections.—The participation of the bone marrow in the defense of the organism against infections is well shown by the appearance of myelocytes in the blood when an infection is installed. Their presence or absence is an important element for the prognosis in pneumonia, for instance. Hoke of Prague has been studying this subject on animals, and reports his research in the *Zeitschrift f. Heilkunde*, xxv, No. 8. He considers it highly probable that macroscopic changes occur in the bone marrow likewise. Among his experiments were some in which he incorporated bone marrow in certain organs, simulating natural chemotactic processes, attempting in this way to demonstrate some direct action on the part of the bone marrow. His experiments are interesting, although not conclusive to date.

Praise for a Physician.—Some physicians and some medical publications occasionally have something to say about the lack of appreciation, among the laity, of the real worth of physicians. It is well to note such a tribute as the following, from the *New York Times:*

> When Dr. Carlos Finlay talks about health conditions in Cuba he must be heard with as much confidence as respect, for to special knowledge acquired by many years residence in the island he adds a thorough familiarity with all the new information in regard to the relations between insects and fevers, and he has a peculiar reason for believing in the reality of that relation and acting in accordance with it. For he is the man who, years and years before more than one or two people, if any, had begun to look with suspicion on the mosquito as a possible carrier of disease, positively and publicly charged the creature with performing that ill-service in the case of yellow fever. This conclusion he seems to have reached by a sort of divination, for his facilities were not such as to permit him to prove his theory, and it was so novel, so contrary to all the accepted ideas as to the conveyance of the so-called malarial maladies, that his now famous paper attracted no attention at all except a few pitying smiles, and it was left for our own Army surgeons, as part of the army of occupation in Cuba after the war with Spain, to take up the matter in the light of discoveries made in India and Italy, and turn Dr. Finlay's unsupported assertion into an absolute demonstration. This gave him the best of rights to say, "I told you so," but he has done it as little as could be expected from a mere mortal, and has taken no pains at all either to win fame for himself as a discoverer or to diminish that of investigators who, however admirable their work, could not have claimed his complete originality.

Clippings from Lay Exchanges.—"To the medical reader," remarks the *British Medical Journal*, "there is often more excellent fooling in the daily newspapers than in the professedly comic journals. The fun is unintentional, of course, but that makes it all the better, for, as Mr. Barrie's humorist says, two persons are required for the prosperity of a jest—one to make it and the other to see it. On the death of Professor Finsen, a message from Copenhagen informed the world that the initiator of the light treatment had died of 'calcination of the pericardium.' Not long ago the *St. James' Gazette* gave Lord Lister the credit of having devised the method of 'healing by first intention,' a soft impeachment which, we are sure, the great surgeon would be unwilling to own. Another evening paper is responsible for the statement that 'hemophilia, or lust of blood, is a well-known sign of degeneration.' In the matter of comic medicine the British press must, however, yield the palm to American journalism." There are then quoted some of the humorous bits with which THE JOURNAL readers have been made familiar through our column entitled "Clippings from Lay Exchanges."

Tuberculosis and Soiled Linen.—S. Bernheim of Paris, in a communication to the recent French Congress of Internal Medicine, expatiated on the danger of contagion from the soiled linen of consumptives. The soiled clothing of the family is usually kept in permeable receptacles, and when sorted out to send to the laundry becomes a menace if any member of the family is tuberculous. The bundles are piled with those from other families, and the employes in the laundries are liable also to become infected. In fact, the employes in laundries supply the largest contingent to the clientèle of the antituberculosis dispensaries throughout the country. He advocates that soiled linen should be kept in airtight receptacles and sent to the laundry in impermeable bags, disinfected at once on arrival. A still better measure would be to have a central city laundry where the linen from consumptives being treated at the special dispensaries should be laundered free, or at minimal rates. These simple measures would prevent many cases of new infection.

A Pure-Food Law.—In a paper by Dr. E. J. Lederle read at the International Congress of Arts and Science at St. Louis, attention was called to the fact that competition in trade has become so keen and the substitution of inferior constituents in foods so general that the honest manufacturer has hardly a chance to succeed. The paper also stated that the use of injurious preservatives is practiced to a scandalous extent, and that the only remedy for these conditions is the passage and enforcement of a federal pure-food law. The paper went on to state that the public in general does not understand the extent to which patent medicines and secret nostrums undermine the public health, and says that there has been little or no attempt made to assume official control over their production and sale. Dr. Lederle considers that makers of patent medicines should be required to place on each package or bottle the exact ingredients it contains, and should be prosecuted for any deviation which can be shown to be detrimental to the health of the persons using the remedy, or which is designed to perpetrate on them a commercial fraud.

Responsibility of Authors for Their Formulas.—The Lyons courts recently acquitted a physician who had made an injection of 40 gm. of a 5 per cent. solution of cocain with the consequent death of his patient. The operation was for the relief of hydrocele, and the patient succumbed in twenty minutes after the preliminary injection of the cocain. The physician stated that he had merely followed the directions in Tillaux' Manual of Clinical Surgery, second edition, page 411, which advised for such cases an injection of "about 30 grams of a 5 per cent. solution of cocain;" that is, a gram and a half of cocain. In the third edition, which followed three years later, Tillaux warned against large doses and advised "about 10 grams of a 1 per cent. solution," that is, 10 cgm. The necropsy revealed pleural adhesions which made any injection of cocain dangerous. The court acquitted the physician, stating that the citation from Tillaux' text-book freed him from responsibility. Professor Tillaux was president of the Paris Académie de Médecine at the time of his death last fall, which occurred not long after this legal decision. The *Journal de Méd. de Paris*, commenting on the affair, remarks that the decision evidently offers a precedent for holding the author of a book or formula responsible if the application of his formula entails any mishap. It doubts, however, if this precedent will be accepted in jurisprudence, as any physician making such an injection ought to know enough not to inject 2 gm. of cocain under any circumstances. "Our confidence in the works of the masters should not deprive us of our powers of judgment." A similar case was recently decided in Georgia. The proprietor of a patent medicine was sued for injuries by a person who had taken the medicine. The court held that the proprietor was responsible and stated that after careful search not only in the authorities quoted by counsel, but in others, no record of a similar question having been determined by any court could be found. The court held further: "If the contents of a medicine are concealed from the public generally, and the medicine is prepared by one who knows its contents, and he sells the same, recommending it for certain diseases and prescribing the mode in which it shall be taken, and injury is thereby sustained by the person taking the same, proprietor would be liable for the damage thus sustained. . . . These proprietary or patent medicines are secret, or intended by the proprietors to be secret, as to their contents. They expect to derive a profit from such secrecy. They are, therefore, liable for all injuries sustained by any one who takes their medicine in such quantities as may be prescribed by them. . . . He has a right to rely on the statement and recommendation of the proprietor, printed and published to the world; and if, thus relying, he takes the medicine and is injured on account of some concealed drug of which he is unaware, the proprietor is not free from fault, and is liable for the injury thereby sustained."

State Boards of Registration.

COMING EXAMINATIONS.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison. Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Florida April and October Reports.—Dr. J. L. Niblack, secretary of the Board of Medical Examiners of the Third Judicial district, reports the oral examinations held at Live Oak, April 12 and Oct. 11, 1904. The total number of questions asked was 70; percentage required to pass, 75. Four persons were examined, all of whom passed. No averages were assigned by the board. The following colleges were represented: Tulane University, La., (1904); College of P. and S., Atlanta, Ga., (1903); Harvard University, (1903); Univ. of Pennsylvania, (1899).

Connecticut November Report.—Dr. C. A. Tuttle, secretary of the Connecticut Medical Examining Board, reports written examination held at New Haven, Nov. 9-10, 1904. The number of subjects examined in was 7; total number of questions asked, 70; the percentage required to pass, 75. The total number examined was 20, of whom 12 passed and 8 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
College of P. and S., New York	(1904)	83.1
College of P. and S., Baltimore	(1904)	75.6
Yale	(1904) 82.2, (1903)	77, 79.8, 78.9
Cornell	(1898)	82.1
Baltimore Med. College	(1904)	80.1
Univ. of Naples, Italy	(1901)	75.8
Dartmouth Med. Coll	(1903)	79.5
Univ. of Vermont	(1903)	79.9
Tufts Med. Coll	(1903)	76.2
FAILED.		
Baltimore Med. Coll	(1903)	58.8
College of P. and S., Baltimore	(1904)	73.5
Baltimore Medical College	(1904) 74.5, (1903)	74.7
Univ. of Naples, Italy	(1901)	73.6
Maryland Med. Coll	(1904)	73.2
Univ. of Vermont	(1898)	70
College of P. and S., Boston	(1904)	73.8

Dr. C. A. Lindsley, secretary of the Connecticut State Board of Health, reports the written examination conducted by the examining committee of the Homeopathic State Medical Society at Hartford, Nov. 8-9, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Two persons were examined, 1 passed and 1 failed. Passed: Hahnemann Medical College, Philadelphia. Failed: New York Homeopathic Medical College and Hospital.

Georgia October Report.—Dr. F. D. Patterson, secretary of the regular Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct. 11, 1904. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 21, of whom 20 passed and 1 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Maryland Med. Coll	(1904)	75, 75, 80, 81, 82
Univ. of Maryland	(1904)	83, 85, 87, 87
Univ. of Virginia	(1901)	85
Tulane University	(1904)	86
Johns Hopkins University	(1903) 86, (1904)	85
College of P. and S., New York	(1904)	88
Univ. of the South, Sewanee	(1900)	85
Meharry Med Coll	(1904)	79, 77
Med. Coll. of South Carolina	(1904)	84
Jefferson Med. Coll	(1904)	79
Shaw Univ. Med. Dept	(1904)	82
Boston University	(1878)	78
FAILED.		
Chattanooga Med. Coll	(1895)	66

The following questions were asked:

CHEMISTRY.

Give the symbol, atomic weight and valence of each of five elements. Distinguish between the ide and ate terminations. Give formula for potassium chlorid and potassium chlorate. How many minims in one c.c. of water? What is a hydracid? An oxyacid? What is an empirical formula?

PHYSIOLOGY.

Give principal events in gastric digestion. Define blood pressure State the factors which increase and decrease blood pressure State, approximately, the amount of oxygen consumed and the amount of carbon dioxid produced in respiration in twenty-four hours. Describe the secreting structures of the kidneys. Give origin and distribution of sympathetic nerve fibers. Name the three classes into which its ganglia are divided.

MATERIA MEDICA AND THERAPEUTICS

Give symbols of minims, fl drams, fl ounces pint gallon Give difference between anesthetic and analgesic Examples of each (a) Define motor excitants; (b) name the most important, (c) therapeutics and doses (a) Source of turpentine, (b) its composition; (c) action, external and internal; (d) its principal preparation; (e) therapeutics and doses Write a prescription for gastric fermentation containing carbolic acid, bismuth subnitrate, glycerin, peppermint water.

GYNECOLOGY.

Describe the technic for a simple curettage; for curettage after an abortion, and for carcinoma which can not be removed radically. Describe an operation for lacerated perineum; for lacerated cervix Describe an operation for cystocele, rectocele and prolapsed uterus to second degree Give differential diagnosis between ectopic gestation, pyosalpinx and appendicitis Name some of the causes of pelvic suppuration State how you would treat an ovarian or tubal abscess attached to vaginal wall

SURGERY.

Describe an amputation at lower third of the thigh What is surgical shock, and how would you treat it? What is fracture; what is dislocation; how would you treat a compound, comminuted fracture of leg at its middle third? What is varicocele; hydrocele? Describe operation for both conditions What is hernia? Describe an operation for radical cure of inguinal hernia

PRACTICE

Give etiology of poliomyelitis; (a) give some of the most prominent symptoms; (b) give location of lesion. Give the most distinguishing symptoms of smallpox; (a) give the three forms and types of each Give etiology and treatment of lobar pneumonia What is the essential cause of rachitis? (a) give treatment Location of the lesions in acute dysentery in children; (a) give treatment.

OBSTETRICS.

Diagnose placenta previa; (a) describe method of treating same Describe method of handling case of postpartum hemorrhage Give method of handling puerperal eclampsia Name the three stages of labor; (a) describe beginning and termination of each Give the presumptive and certain signs of labor.

DIAGNOSIS.

What is vocal fremitus? What conditions: (a) increase vocal fremitus (b) diminish vocal fremitus? Mention the aids to diagnosis that are of practical use in medicine and surgery Describe the diagnostic characteristics of acute appendicitis Differentiate rheumatic arthritis and joint tuberculosis Differentiate acute cerebral meningitis from syphilitic gumma.

ANATOMY.

(a) Describe the frontal bone and (b) name its articulations (a) Give the names of the muscles of the thigh and (b) state the origin, insertion and action of any one of the muscles mentioned Describe the origin, course and distribution of the renal arteries (a) Describe the portal system of veins and (b) give portal circulation. Describe the sympathetic nerve naming and locating the principal ganglia Give the anatomy of the skin and of its appendages

PATHOLOGY.

Give pathology of interstitial nephritis Define arthritis deformans, and give its morbid anatomy Discuss the pathologic conditions in herpes zoster. Describe pus and give its essential elements Name the bacteria usually associated with ordinary inflammation and suppurative processes

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Association News.

COUNCIL ON MEDICAL EDUCATION.

Meeting held in Philadelphia, Dec. 28, 1904.

A meeting of the Council on Medical Education of the American Medical Association was held at the Bellevue Stratford Hotel Philadelphia, Dec. 28, 1904. The members of the council, all of whom were present, are Drs A. D. Bevan, chairman, Chicago; V. C. Vaughan, Ann Arbor; J. A. Witherspoon, Nashville; W. T. Councilman, Boston, and C. H. Frazier, Philadelphia

Dr. Witherspoon moved that Dr. George H. Simmons be asked to co operate with the council and that Dr J. H. Musser be regarded as a member ex-officio. Carried.

Dr. Vaughan moved that the council ask for a headquarters in the building of the American Medical Association in Chicago Carried.

Dr. Witherspoon moved that Dr. Vaughan and the chairman constitute a subcommittee to confer with the Board of Trustees with reference to the appointment of a salaried secretary. Carried.

Dr Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges in those states in which it is fixed by statute Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges as fixed by the state boards of medical examiners Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges and the manner in which the credentials of preliminary education are received. Carried.

Dr. Witherspoon moved that the council draw up a scheme specifying the minimum requirements for the entrance to the study of medicine and the method whereby they shall be received.

Dr. Witherspoon moved that the secretary be instructed to ascertain and tabulate the length of the sessions in the various medical colleges. Carried.

Dr. Witherspoon moved that two subcommittees be appointed, one to report a scheme for the minimum requirements for admission to medical schools and the other a scheme on the curriculum. Carried.

The chairman appointed the following committees: Committee on preliminary education, Drs. Bevan, Vaughan and Witherspoon; committee on curriculum, Drs. Bevan, Councilman and Frazier.

Dr. Vaughan moved that the secretary be instructed to request each state board of medical examiners to send one representative to meet the council at its next meeting in Chicago. Carried.

It was decided that the chairman call a meeting of the council at Chicago, April 21 or 22, 1905.

Dr. Councilman moved that the surgeons general of the Army, of the Navy and of the Marine-Hospital Service be requested to send delegates to represent their respective services at the next meeting of the council and that they be informed as to the character of the information which the council desires Adjourned

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NEW MEMBERS.

New members for the month of December, 1904:

ALABAMA.

Carleton, Wm G, Dudleyville
Curtis R C, Gansey.
Clements, H. C, Benton
Coley, A J, Alexander City.
Drake, J. H, Auburn
Hays, Luther, Cullman.
Hiflin, H T, Birmingham.
Harlan, A L, Alexander City.
Jones, C C, East Lake
Manasco, Titus Carbon Hill.
Milner, G M, Goethite
Pugh, Francis F., Brookside
Prissly, H E, Birmingham
Peter, Thos M, Fayette
Thomas, M C, Belle Ellen
Twitty, F S, Columbia
Webb Alfred P, Atmore.
Watkins, Jas P, Opehika

ARIZONA.

Lennox, J W., Tuscon
Schrader, C. A, Tuscon.

ARKANSAS

Bills, A R, Sulphur Springs
Caruthers, C K, Pine Bluff
Fason, J. T, Grand Lake.
Early, C S, Camden
Graves, G W, Pleasant Plains
March, C J, Fordyce
Penn, G E, Marvell
Ross, Chas J, Caglesville
Reves, W B, Alma
Stearns, Moses, Springdale
Snodgrass W A, Little Rock
Withers, J. W., Pine Bluff
Woods G G, Huntington

CALIFORNIA

Arbogast, J L, St Helena
Armstrong, M M, Los Angeles
Anderson, L S, San Francisco
Beerman, W. T, San Francisco
Penepe, J L, San Jose
Barmore, W A, Santa Rosa
Burgess O O, San Francisco
Briggs, Solon, Pasadena
Bowerman, A. C, Brentwood
Blake Chas R, Atchison
Burchard, L S, Oakland
Bauter, Lucian A, Redding
Cooper, Chas M, San Francisco
Crowder Henry C, Tracy
Dresser, Ralph O, Paso Robles
Dorais Louis P, Eureka
Ellinwood, C. N, San Francisco
Ellis S A, Azusa
Fiske, H A, Pasadena
Fitzgerald, W W, Stockton
Fish, C W, Los Angeles
Freeman, W. F, Needles
Foster, N K, Sacramento
Galehouse, Frank C, Fresno
Green, N, Watsonville
Gatchell, Ella F, Chico
Grosse, A B, San Francisco
Hirschfelder, A D, San Francisco.
Hitchcock, Wm W, Los Angeles
Hawkins, G A, Reedley
Harbirk, E, Stockton
Hoffman, L H, San Francisco
Irey, J. T, Lakeside
Jenkins J F T, Los Angeles
Keyes, Henry S, Los Angeles
Kerr, Wm J, Sebastopol
Lehr, Stella R, Berkeley
McArthur, Wm T Los Angeles
Moyer, J J, Mayfield
Mallory, G. W, Santa Rosa
O'Brien, E S, Merced
Parker, John, Salinas
Peers, R A, Colfax
Porter, Geo C, Hollister
Porter, Wm S, Oakland
Phelan, Henry Du R, San Francisco.
Reinle, Geo E, Oakland
Rogers, A C, Los Angeles
Shults, Jas H, Los Angeles
Simpson, Frank Wm, San Francisco.
Stibbens, F H, San Francisco
Smith, Dudley, Oakland
Salomon, D M, San Francisco
Southworth, H E, Stockton
Todd, Thos M, East Auburn
Thiell, Wm C A Los Angeles
Trew, Niel C, Los Angeles
Taltavall, Wm A, Redlands
Wallace, A H, Fresno
Wilson, C G, San Francisco
Wing, H B, Los Angeles
Ward, M W, Woodland
Wood G N, Blue Lake
Yates Elizabeth M, Santa Rosa
Zuill Wm L, Pasadena
Zachariah, S R, San Francisco

COLORADO

Hanson, K, Grand Junction
Jones, Robert Ft Morgan
Law G, Greeley.
Stadler, Lester C, Ouray

CONNECTICUT

Brooks, M J, New Canaan
McFarland, David W, Green's Farms
Steadman, W G Southington

Snow, F. L., Hartford.
Stretch, James, Stafford Springs.
Tiffany, Frank M., Stamford.
Welch, Ed. H., Winsted.
Walsh, Thos. P., Middletown.
Waite, F. L., Hartford.
Witter, O. B., Hartford.

DELAWARE.

Downs, P. J., Dover.
Skinner, T., Glasgow.

DISTRICT OF COLUMBIA.

Belknap, J. L., Washington.
Grayson, C. T., Washington.
McDonnell, W. N., Washington.
McAdory, Robert J., Washington.
Walker, Allen, Washington.

FLORIDA.

White, W. C., Live Oaks.
Wilson, Percy B., Sneads.
Van Valzah, J. A., Daytona.

GEORGIA.

Edwards, W. E., Cordele.
Gheesling, J. H., Greensboro.
Humphries, W. C., Acworth.
Oliveros, B. F., Savannah.

ILLINOIS.

Anten, F. E., Belleville.
Ashton, L. B., Quincy.
Arnold, B. A., Freeport.
Baker, John W., West York.
Ballance, H. A., Peoria.
Brengle, Geo. C., Winchester.
Blackwelder, J. F., Litchfield.
Brown, Geo. W. I., Dixon.
Blount, Anna E., Chicago.
Bower, R. W., Sheridan.
Brown, Curtis, Marion.
Baxter, Geo. E., Jacksonville.
Crutcher, Howard, Chicago.
Coy, R. E., Rockford.
Campbell, Wm. A., Chicago.
Corbus, J. C., Kankakee.
Curtis, W. H., Wilmington.
Darragh, E., Winnetka.
Dowdall, Guy G., Clinton.
Van de Roovart, J. F., Chicago.
Doepfner, Karl, Chicago.
Davidson, T. W., Oneida.
Dixon, W. A., Decatur.
Dunn, B. B., Perry.
Edwards, F. M., New Badur.
Ellis, J. P., Augusta.
Fletcher, W. R., Joliet.
Foulds, Thos. L., Alton.
Fletcher, J. R., Winnetka.
French, Z. D., Lawrenceville.
Fish, Wm. B., Oak Park.
Gelder, E. E., Peoria.
Grosvenor, W. F., Chicago.
Green, R. E., Chicago.
Gernon, J. H., Beaverville.
Hollands, L. F., Wheaton.
Hendricks, W. W., Bardolph.
Hardt, H. G., Hospital.
Holleman, P. W., Chicago.
Hamilton, R. J. C., Chicago.
Jentzsch, R., Chicago.
Kretsinger, J. F., Leaf River.
Keith, L. S., Towando.
Keyes, R. H., Hopedale.
Kirby, Wm. Thos., Chicago.
Kinloch, J. A., Chicago.
Krenser, T. A., Chicago.
Kanavel, Allen B., Chicago.
Landon, D. W., Quincy.
Lewis, J. V., Momence.
Leenneer, C. A., Chicago.
Lesage, Chas. A. E., Dixon.
Laugeay, S. M., Fayetteville.
Murphy, H. A., Sumner.
Marquis, B. V., Buffalo Prairie.
McConnell, R. J., Bayles.
MacLellan, Chas., Chicago.
Moorhead, J. J., Chicago.
Moorhead, E. L., Chicago.
Matson, Wm. F., Monticello.
Martin, Wm. B., Sheward.
McClanahan, Jas. M., Kirkwood.
Maury, J. M., Wheaton.
Millen, Wm. A., Marcellnea.
Moon, W. B., Bellmont.
Meirink, B. J., Germantown.
McNeill, I., Newman.
Nelms, J. N., Taylorville.
Noble, W. L., Chicago.
Owens, E. B., Dixon.
O'Malley, W. H., Kinsman.
Orr, Jesse A., Metropolis.
Patera, F. J., Chicago.
Perkins, J. B., Franklin.
Pischczak, J., Chicago.
Pigall, Jos. S., Chicago.
Root, J. W., Kilbourne.
Ragesdale, A. C., Metropolis.
Reid, L. W., Fairmount.
Reid, Anthony, Chicago.
Reticker, J. K., Quincy.
Roberg, O. T., Chicago.
Silverberg, G. M., Chicago.
Sprouse, J. G., Greenvi
Sorby, E. A., River Forest.
Spiece, Wm. H., Chicago.
Stolp, B. C., Wilmette.
Santee, H. E., Chicago.
Sammons, E. H., Chicago.
Senmott, J. S., Waterloo.
Strauss, F. L., Chicago.
Tucker, Chas. E., Joppa.
Tidball, J., Grafton.
Taylor, F. C., Granville.
Vasumpam, J., Chicago.
White, David A., Little York.
Welch, Chas., Ramsey.
Wozley, Chas. A., Brookport.
Walton, J. E., Medora.
Williams, S. E., New Bedford.
Wilkinson, C. E., Danville.
Zimmermann, C., East St. Louis.

INDIANA.

Allen, Chas. B., North Salem.
Amerman, Chas. A., Dugger.
Andrews, John R., River Vale.
Benham, C. W., Vincennes.
Brannon, G. D., Crown Point.
Bottorff, J. C., Corydon.
Buley, D. W., Vincennes.
Bradley, J. S., Hall.
Close, Thos. H., Scottsburg.
Cummer, W. M., Bloomington.
Epperson, A., South Bend.
Hervey, M. E., Richmond.
Hudelson, L. R., Milroy.
Hiatt, J. E., New Castle.
Hebble, D. W., Terre Haute.
Johnston, A., Akron.
Jenkins, J. R., Shelbyville.
Johnson, P. S., Richmond.
King, M. O., Rochester.
Loop, A. L., Economy.
Miller, C. E., Muncie.
McClain, Wm. L., Scottsburg.
Price, R. C., Monroeville.
Slonaker, C. L., Leiters Ford.
Sparks, J. T., Yeddo.
Sheperd, V., Dupont.
Weaver, B. P., Ft. Wayne.
Walsh, D. W., Mt. Vernon.
Willis, Jos H., Evansville.

IOWA.

Ayres, Ed. C., Larimor.
Arenschield, E. M., Ottumwa.
Armitage, G. I., Hopeville.
Caldwell, A. F., Shenandoah.
Cross, J. R., Foster.
Dewitt, F. F., Berea.
Ely, Wm. E., Ocheyedan.
Greer, B. A., Lamouri.
Hough, F. S., Sibley.
Hombach, W. P., Council Bluffs.
Meyer, H. E., Belmond.
Mason, H. P., Wilton Jct.
Meyer, V. J., Portsmouth.
Parker, E. W., Sutherland.
Parrish, W. O., Osceola.
Stockton, Chas. H., Keokuk.
Sievers, H. H., Tama.
Swezey, B. F., McCausland.
Tinsman, E., Orient.

KANSAS.

Bartley, C. P., Spearville.
Ferguson, O. S., Atchison.
Newton, W. B., Glasco.
Priest, W. R., Concordia.
Scott, John R., Garnett.

KENTUCKY.

Boone, J. C., Wickliffe.
Brown, S. S., Mountain Ash.
Clark, J. H., Bonnieville.
Carr, W. H., Claysville.
Coons, A. B., Newtown.
Earle, B. P., Charleston.
Ford, R. L., Livermore.
Godshaw, C. C., Louisville.
Garr, Chas. R., Flemingsburg.
Gray, Jas. R., Elizabethtown.
Hale, J. L., Wickliffe.
Hermann, Geo. J., Newport.
Hopper, W. O., Perryville.
Irvine, J. F., Tolesboro.
Jones, Theo. L., Will Springs.
Lock, Jas. S., Barbourville.
MacCracken, W. H., Bowling Green.
McCarthy, Chas. W., Fordsville.
Montgomery, F. H., Danville.
Ransom, M. G., Morganfield.
Reesor, J. H., Stithton.
Ranshaw, W. W., Covington.
Ribelin, Thos., Elizaville.
Sleet, Wm. E., Midway.
Salin, W. B., Owenton
Stoltz, M. P., Louisville
Treadway, L., Heidleberg.
Van Arsdall, C. B., Harrodsburg.
Winston, I. D., Sturgis.
Witherspoon, E. O., Louisville.
Wellingham, E. B., Cunningham.

LOUISIANA.

[illegible] E. P., Gonzales.
Berwick, J. C., Berwick.
Colomb, B. A., Union P. O.
Couvillion, W. F., Marksville.
Gill, E. W., Gueydan.
Lemoine, B. J., Cottonport.
May, R. L., Baskin.
Wheaton, E., Gueydan.
Wren, R. B., Rayville.

MAINE.

Chenery, F. L., Wayne.
Ferris, H. R., Oxford.
Hamlet, F. S., Gorham.
Smith, A. R., Portland.
Stevens, T. H., Tenants Harbor.
Smith, A. K. P., Bradford.
Taylor, F. J., Pittsfield.
Wakefield, J. M., Warren.
Wood, A. M., Lentner.

MARYLAND.

Bowen, J. S., Mt. Washington.
Brown, F. S., Baltimore.
Browning, R., Myersville.
Eareckson, Wm. R., Elk Ridge.
Henkel, L. B., Annapolis.
Horn, Aug., Baltimore.
Keidel, A., Baltimore.
Ligget, J. J., Ladiesburg.
Maynard, S. S., Frederick.
McCleary, S., Baltimore
Owings, L. G., Ellicott.
Rosenheim, S., Baltimore.
Wright, J. J., Warwick.
Wolff, E. E., Cambridge.

MASSACHUSETTS.

Andrews, E. A., Newton Center.
Butler, R. B., Fall River.
Barry, E. W., Whitinsville.
Badger, G. S. C., Boston.
Crandon, L. R. C., Cambridge.
Dadnum, E. J., Boston.
Downey, J. F., Springfield.
Dwinell, W. G., Boston.
Fleming, P. J., Roxbury.
Foster, R. W., Lawrence.
Fiske, Chas. N., Chelsea.
Galvin, A. H., Dorchester.
Gould, C. S., Norwood.
Griffin, F. S., Newton Lower Falls.
Griffin, W. A., Sharon.
Holden, N., Southampton.
Hall, J. B., Jr., Boston.
Lynch, C. J., Quincy.
McBain, Wm. H., Malden.
Mahoney, G. C., Somerville.
Mercer, W. J., Pittsfield.
Nute, M. N., Dorchester.
Parks, E. L., Boston.
Russell, E. E., North Adams.
Spaid, C. J., Springfield.
Stiles, F. M., Waltham.
Sears, G. G., Boston.
Torrey, J. P., Andover.
Tirrell, V. M., South Weymouth.
Taylor, E. H., Pittsfield.
Waterman, G. A., Boston.
Wylie, E. R., Boston.

MICHIGAN.

Aaron, Charles D., Detroit.
Bunch, G. H., Kearsarge.
Boss, R. D., Wascousta.
Binning, D. E., Schoolcraft.
Buckham, J. N., Flint.
Clippert, F. J., Delray.
Clarke, H. E., Polisc.
Dunlap, Wm., Detroit.
Ennes, C. J., Sault Ste. Marie.
Elskine, E., Rogers City.
Edwards, S. P. S., Battle Creek.
French, G. E., Wells.
Gibson, F. J., Jackson.
Holm, Aug., Ashton.
Hall, B. C., Pompeii.
Kiefer, Guy L., Detroit.
Kingsley, A. F., Centerville.
Kassabian, W. H., Coopersville.
McCall, D. J., Elkton.
Munro, C. D., Jackson.
Osborn, S., Ann Arbor.
Ransom, T. H., Bloomingdale.
Thomson, A., Adair.
Town, L. S., Geneva.
Taylor, A. L., Middleville.
Thoms, T. M., Lansing.
Wells, M., St. Johns.
Whitmore, H. W., Quincy.
Wheeler, F. D., Detroit.

MINNESOTA.

Bessasan, A. N., Minneapolis.
Baxter, S. H., Minneapolis.
Clement, L. O., Lamberton.
Davis, L. A., Dalton.
Drenning, F. C., Duluth.
Flower, W. Z., Gibbon.
Fjelstad, C. A., Glenwood.
Gilmore, R., Bemidji.
Gunnz, A. N., Center City.
Gravelle, J. M. A., St. Paul.
Haggard, G. D., Minneapolis.
Jenson, T., Spring Grove.
Kreidt, D., Minneapolis.
King, Emil, Fulda.
Lockwood, S. O., Minneapolis.
Le Clerc, J. E., Le Sueur.
Lee, Wm. P., Fairfax.
Moen, J. K., Windom.
Mead, M. A., Minneapolis.
Moore, W. J., Wood Lake.
Strout, George E., Winthrop.
Stevens, F. A., Lake Elmo.
Stone, Wm. F., Park Rapid.
Seashore, G., Minneapolis.
Stievie, A., Rush City.
Taustrom, I., Center City.
Vibrance, G. C., Watkins.
Woodworth, E. A., Minneapolis.
Zelen, Thomas, North Branch.

MISSISSIPPI.

Abston, J. T., Hickory Flat.
Bethea, J. J., Seminary.
Coleman, J. E., Doddsville.
Feemster, L. C., Nettleton.
Hunnicutt, W. J., Poplarville.
Harris, J. B., Stewart.
Meyers, T. J., Shelby.
Mathis, E. J., Quitman.
Partin, E. B., Chunky.
Rainold, M. W., Pass Christian.
Thompson, W. G., Enid.

MISSOURI.

Asher, J. A., Trenton.
Bush, F. W., Hannibal.
Barnet, A. D., Guilford.
Clopton, M. B., St. Louis.
Chaffin, W. F., Raymore.
Dryden, U. C., Purdin.
Davis, A. W., Kansas City.
Farmer, P. J., St. Louis.
Foster, H., Kansas City.
Ferguson, W. J., Sedalia.
Greenfelder, H., St. Louis.
Griffin, P. H., St. Louis.
Griffin, J. M., Millville.
Harrison, A., Lees Summit.
McComb, J. L., Kenoma.
Mitchell, E. H., Pottersville.
Milnes, G. S., Milan.
Owens, F. C., Agency.
O'Dell, T. T., Ellington.
Stevens, R. N., Chillicothe.
White, A., Lakenan.

MONTANA.

Taylor, W. W., Kalispell.
Watkins, C. F., Billings.

NEBRASKA.

Ackley, W., Juniata.
Benington, G. A., Schuyler.
Bellwood, H. H., Alliance.
Hoyt, S. H., Omaha.
Marble, R. R., Hastings.
Magill, J. S., Gilead.
McNulty, J. F., Callaway.
Robinson, C., Pender.
Salter, P. H., Norfalk.
Stretton, H. H., Chester.
Talbott, W. E., Broken Bow.
Ward, A. A., Brady Island.
Womsley, L. B., West Union.

NEW JERSEY.

Arlitz, Wm. J., Hoboken.
Beach, E. M., West Long Beach.
Heintzelman, B. S., Bayonne.
Jedel, M., Newark.
Leonard, I. E., Atlantic City.
Matthews, H. E., Orange.
Read, C. H., Trenton.
Squier, M. T., Harrison.

NEW YORK.

Benedict, A. C., New York.
Barrick, C. W., Buffalo.
Bates, Wm. H., Brooklyn.
Fleming, M. J., New York.
Gilley, Wm. C., New York.
Goodrich, C. H., Brooklyn.
Gallager, E. J., Kingston.
Holding, A. E., Kingston.
Howell, J. T., Newburgh.
Hasbrouck, C. V., Rosendale.
Joyce, R. A., New York.
Keator, H. C., Rosendale.
Mandlebaum, F. S., New York.
Peck, M. R., New York.
Rostenberg, A., New York.
Radin, H. T., New York.
Sheffield, H. B., New York.
Van Loon, J. C. P., New York.
Wright, M. C., Mt. Vision.

NORTH DAKOTA.

Brenckle, J. F., Kulm.
Fernald, A. M., Sutton.
Patterson, C. F., Rye
Saltmarsh, G. H., Lakeport.

OHIO.

Anzinger, F. P., Springfield.
Bookwallie, H., Columbiana.

Bates, F. L., Lima.
Brown, C. G., Mansfield.
Bailey, H. E., Swanton.
Black, J. F., Cleveland.
Cunningham, S. A., Marietta.
Carpenter, L. F., Cincinnati.
Colter, L. S., Cincinnati.
Carey, M. J., Cleveland.
Clark, H. F., Rarden.
Drennen, J. N., Loydsville.
Ford, S., Cincinnati.
Good, I. L., Bellevue.
Gilmore, Wm. N., Lisbon.
Grafe, F. A., Cincinnati.
Gavin, F. W., Canton.
Gowing, W. A., Toledo.
Howley, C. A., New Paris.
Hartley, F. A., Byhalia.
Hazelton, H. M., Lancaster.
Hosick, W. R., Newcomerstown.
Keidler, A. G., Cincinnati.
Kistler, H. B., Sunbury.
Matthews, J. W., Buford.
McVay, F. P., Athens.
McGee, W. C., Vanlue.
McLeod, C. D., Chatfield.
Metcalfe, B. F., Greenville.
McDiarmid, N. L., Dayton.
Metzler, W. M., Vanlue.
Michlethwait, W. D., Portsmouth.
Oswald, B. F., Cleveland.
Russell, J. E., Mt. Vernon.
Sutter, F. B., Shelby.
Shank, R. R., Trotwood.
Sater, P. M., Gratis.
Selby, C. D., Cleveland.
Thompson, W. R., Troy.
Upson, G. D., Cleveland.
Whitaen, M., Cincinnati.
Wilson, E. M., Portsmouth.

OKLAHOMA.

King, Wm. M., Oklahoma City.
Levi, M. H., Elk City.
Lile, H. A., Aline.
Rector, N., Hennessey.
Standifer, T. E., Busch.

OREGON.

Evin, W. H., Union.
Jarnagin, M. E., Coburg.
Pilkington, R. J., Astoria.

PENNSYLVANIA.

Brumbaugh, A. S., Altoona.
Cadwallader, E. W., Philadelphia.
Cooley, J., Sandy Lake.
Chapin, F. S., Erie.
Curry, E. A., Danville.
Colcord, J. B., Port Allegany.
Colley, B., Dunbar.
Donohoo, J. F., Washington.
Downton, E. W., Starrucca.
Dodds, C. F., Washington.
Dutton, W. F., Walkers Mills.
Emmerling, C., Pittsburg.
Echard, T. B., Connellsville.
Everett, M. A., Scranton.
Fisher, H., Philadelphia.
Ferguson, G. M., Philadelphia.
Fredricks, W. J., Bradford.
Gass, H. W., Sunbury.
Graves, E. A., Coatesville.
Hoon, A. J., Mercer.
Hahn, J. N., Bath.
Hall, Wm. T., Tarentum.
Hays, M. J., Kane.
Hess, R. J., Philadelphia.
Hoover, B. A., Wrightsville.
Herr, B. F., Millersville.
Jenkins, J., Scranton.
Koch, V. F., Nazareth.
Kunkel, G. B., Harrisburg.
Knorr, J. K., Jr., Philadelphia.
Klotz, R. B., Lehigh.
Larkin, P. A., Uniontown.
Loeh, V. A., Philadelphia.
Le Roque, P. J., Philadelphia.
Lillibridge, Alice, Olyphant.
Lowman, J. B., Johnstown.
Mutschler, L. H., Philadelphia.
McConnell, E. M., Grove City.
Marvin, M. E., Luzerne.
Meyers, E. H., Wilkesbarre.
Newlin, A., Philadelphia.
Perdue, W. R., Unionville.
Peck, E. L., Philadelphia.
Peck, W. A., Scranton.
Ritter, H. T. M., Allentown.
Righter, H. M., Philadelphia.
Raudenbush, J. S., Philadelphia.
Stewart, W. C., Johnetta.
Snively, A. B., Waynesboro.
Scott, J. Y., Washington.
Smith, C. H., Parksburg.
Spragg, Charles W., Waynesbury.
Smith, E. A., Snydertown.
Schaeffer, E. D., Reading.
Stottler, F. R., Wilkinsburg.
Snodgrass, B. R., Rochester.
Tunis, J. P., Philadelphia.
Westman, A. A., Tannersville.
Wister, T. W., Germantown.
Wright, J. H., Allegheny.
Weygandt, W. W., Thomas.
Williamson, T. H., Allegheny.
Wilkins, J. C., Oil City.

RHODE ISLAND.

Baxter, J. J., Woonsocket.
Hawkes, C. E., Providence.
Moore, J. S., East Providence.
Smith, H. W., North Satuati.

SOUTH CAROLINA.

Bouner, L. F., Blackville.
Cheyne, W., Sumter.
Gillard, W. M., Plantersville.
Rosmond, J. O., Easley.
Stuckey, H. M., Sumter.
Tompkins, J. G., Edgefield.

SOUTH DAKOTA.

Klovatad, A., Yankton.
Line, W. M., Aberdeen.
Lockwood, J. H., Wolsey.
O'Toole, C. S., Vienna.

TENNESSEE.

Bosworth, B. D., Knoxville.
Brasfield, S. W., Humboldt.
Bell, C. B., Nashville.
Doyle, A. N., Columbia.
Denton, S., Buffalo Valley.
Marshall, C. C., Hornbeck.
Perry, R. S., Columbia.
Reese, H., Gallatin.
Shelton, E. A., Graysville.
White, S. W., Franklin.
Yongue, S. D., Oblon.

TEXAS.

Arnecke, C. A. H., Arneckville.
Anderson, S. J., Brady.
Baldwin, B. H., Harnack.
Black, J. T., Elroy.
Buster, A. O., Celina.
Barnes, F. L., Groveton.
Cherry, T. T., Timber.
Campbell, W. R., Chappen Hill.
Carter, W. W., Leland.
Casey, Z. N., Albany.
Davidson, G. L., Wharton.
Drisdale, Wm. E., Yoakum.
Frechet, E. A., Hockheim.
Grant, C. B., Graham.
Hammond, J. S., Noble.
Halley, W. B., Ballinger.
Herrington, J. L., Mullin.
Harris, M. W., Bivins.
Howe, T. G., Douglasville.
Jenkins, F. H., Howard.
Jackson, C. M., Frankford.
Lowry, Wm., Guy.
Leonard, J. W., Peters.
McMillan, J. D., Paris.
Martin, A. E., Bonham.
Miller, T. A., Corsicana.
Morgan, W. M., McMahon.
Oliver, J. P., Caldwell.
Patton, O., Midway.
Rimmer, S. W., San Saba.
Stone, T. E., Jasper.
Smith, B. J., Houston.
Stroud, A. D., Henderson.
Schnell, J. H., Comfort.
Seymour, F. B., Beeville.
Stein, D. Y., Slidel.
Tappington, J. B., Oakhill.
Townsend, E. D., Llano.
Weber, W. G., Round Rock.
White, W. P., Henderson.
Watkins, C. R., Floresville.
Watts, S. A., Moffat.
Walker, Wm. H., Oakland.
Woodward, S. A., Carthage.
Zachry, G. R., Talpa.

UTAH.

Steele, F. B., Salt Lake City.
Smedley, R. C., Bingham.
Wherritt, W. R., Heber.

VERMONT.

Badger, F. D,. Coventry.
Campbell, C. M., Rochester.
Hodgkins, C. L., Castleton.
Hoyt, E. F., Sandgate.
Hubbard, N. V., Barnard.
McArthur, J. H., East Barre.
McMahon, P. H., Burlington.
Nowlan, I. L., South Strafford.
Ranks, W. H., Shelburne.

VIRGINIA.

Burwell, Z. C. A., Salem.
Crockett, M. B., Knob.
Cockrell, L. E., Reedville.
Dunlap, J. C., Middlebrook.
Early, J. L., Galas.
Field, A., Gilmerton.
Forrer, D. A., Richmond.
Innes, W. J., Brookneal.
Moore, S. B., Alexandria.
Neff, J. H., Harrisonburg.
Tucker, C. C., Roanoke.
Wright, F. J., Fork Union.
Younger, E. F., Blackwood.

WASHINGTON.

Keylor, H. R., Walla Walla.

WEST VIRGINIA.

Bush, A. A., Berlin.
Baber, J. H., Finlow.
Bullard, R. H., Wheeling.
Fansler, M. J., Rowlesburg.
Gilchrist, T. L., Pickaway.
Haynes, W. N., Boomer.
Hutchins, W. S., Wheeling.
Howle, P. W., Mt. Carbon.
Love, R. W., Moorefield.
Moss, V. R., Barboursville.
Post, W. H., Dellslaw.
Wilson, M. S., Wildell.
Wilson, W. C. L., Mannington.

WISCONSIN.

Aylward, R. C., Star Lake.
Boothby, E. L., Hammond.
Brown, F. W. A., Oshkosh.
Braun, O., Ashland.
Bradbury, E. L., Neillsville.
Brewer, J. B., Jefferson.
Beust, M. V., La Crosse.
Buckland, R. H., Princeton.
Combacker, H. E., Osceola.
Corr, A. B. S., Juneau.
Crum, J. A., Oshkosh.
Christiansen, E. S., Two Rivers.
Clark, B., Oshkosh.
Dyer, W. O., Neshkoro.
Eicher, Wm. B., Bonduel.
Foley, F. P., Neshkoro.
Foulds, R. F., Abrams.
Force, O. O., Pardeeville.
Gunther, E., Sheboygan.
Harris, Wm., Waukesha.
Horn, C. P., Luck.
Hurlbut, C. J., Omro.
Hastings, T. W., Limeridge.
Johnson, J. C., Ogdensburg.
Kreutzer, A. G., Cedarburg.
Leith, S. S., Junction City.
Miller, T. H., Maiden Rock.
Mathiesen, J., Whitehall.
Martin, George, Baldwin.
McDonald, R. J., Doylestown.
Netter, Wm., Sturgeon Bay.
Pinkerton, W. T., Prairie du Chein.
Potter, R. P., Auburndale.
Philler, H., Waukesha.
Provost, A. J., Oshkosh.
Rathbun, J. W., Prairie du Chein.
Richards, C. A., Rhinelander.
Simons, H. R., Sturgeon Bay.
Smith, P. H., Racine.
Webster, F. E., Amherst.
Walbridge, J. S., Berlin.

PHILIPPINE ISLANDS.

Wheate, J. M., Lucena.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of Medical officers, U. S. Army, for the week ending Jan. 7, 1905:

Siler, Joseph F., asst.-surgeon, relieved from duty at Fort Logan, Colo., and ordered to Fort Meade, S. D., for duty.

Devereux, J. R., asst.-surgeon, relieved from duty at Fort Meade, S. D., and ordered to Fort Logan, Colo.

Reilly, John J., asst.-surgeon, ordered to proceed from Jackson Barracks, La., U. S. Army General Hospital, Fort Bayard, N. M., for treatment.

Mearns, E. A., surgeon, granted thirty days' leave, to take effect on expiration of his present sick leave.

Geer, Charles C., asst.-surgeon, retired from active service on account of disability incident thereto.

Owen, W. O., surgeon, ordered to Fort Leavenworth, Kan., for examination by an army retiring board.

Byrne, Charles B., asst.-surgeon general, detailed member of army retiring board to meet at Fort Leavenworth, Kan., vice Lieutentant Colonel George W. Adair, deputy surgeon general, relieved.

Yost, John D., asst.-surgeon, relieved from duty at San Francisco and ordered to Honolulu, H. T., for duty, relieving Major William B. Davis, surgeon.

Davis, William B., surgeon, relieved from duty at Honolulu, H. T., and ordered to Philippine Islands for duty.

Woodson, R. S., asst.-surgeon, relieved from duty at Fort Clark, Texas, and on discharge from Army and Navy General Hospital, Hot Springs, Ark., ordered to Fort McDowell, Cal., for duty.

Farr, Charles W., asst.-surgeon, in addition to his present duties will perform the duty of attending surgeon, San Francisco.

Wall, Francis M., contract surgeon, granted leave of absence for ten days.

McCall, James H., contract surgeon, ordered from Fort Moultrie, S. C., to Key West Barracks, Fla., for temporary duty.

Burr, Rollin T., contract surgeon, granted an extension of seven days to his leave of absence.

Hayes, Melville, A., contract surgeon, ordered to Vancouver Barracks, Wash., for duty at the expiration of his present leave of absence.

Bell, Leonard P., Hansen, Morris J., and Tuttle, George B., contract surgeons, sailed December 31 on the transport *Thomas* from San Francisco for Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 7, 1905:

Payne, J. H., P. A. surgeon detached from the *Marietta* and ordered home to wait orders.

Ross, John W., medical director, to be placed on the retired list Jan. 11, 1905, under provisions of Section 1444, Revised Statutes, on which date he will reach the age of 62 years. He is ordered to continue duty with the Isthmian Canal Commission after retirement.

Steele, John N., surgeon, detached from the Naval Recruiting Station, Baltimore, and ordered to the *Colorado*.

Elmer, M. K., asst.-surgeon, detached from the *Hancock* and ordered to the Naval Hospital, New York, for treatment.

McMurdo, P. F., A. A. surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Naval Recruiting Station, Baltimore.

Ferebee, N. M., medical director, having been examined by a retiring board and found incapacitated for active duty, on account of physical disability incident to the service, retired from active service Dec. 31, 1904, under Section 1453, Revised Statutes.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 4, 1905:

Brooks, S. D., surgeon, to report on Jan. 10, 1905, to chairman of board of examiners at Fort Stanton, N. M., for the purpose of determining his physical condition.

Nydegger, J. A., P. A. surgeon, granted leave of absence for seven days from Dec. 25, 1904, under Paragraph 191 of the Regulations.

Greene, J. B., P. A. surgeon, granted extension of leave of absence for seven days from Jan. 3, 1905.

Lumsden, L. L., P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Philadelphia and report to the medical officer in command for duty.

Salmon, T. W., asst.-surgeon, relieved from duty at Philadelphia and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

Gregory, G. A., A. A. surgeon, granted leave of absence for seven days from December 30.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from Jan. 16, 1905.

Wakefield, H. C., A. A. surgeon, granted leave of absence for three days under Paragraph 210 of the Regulations.

Brown, F. L., pharmacist, granted leave of absence for thirteen days from December 19, 1904. Granted extension of leave of absence for two days from Jan. 1, 1905.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., Jan. 5, 1905, for the physical examination of candidates for the position of second assistant engineer, Revenue-Cutter Service. Detail for the board: Asst.-surgeon General G. T. Vaughan, chairman; Asst.-surgeon A. J. McLaughlin, recorder.

Board convened to meet at Fort Stanton, N. M., Jan. 10, 1905, for the purpose of making a physical examination of Surgeon S. D. Brooks. Detail for the board: Surgeon P. M. Carrington, chairman; Asst.-surgeon Norman Robert, Asst.-surgeon H. G. Ebert, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 6, 1905:

SMALLPOX—UNITED STATES.

Colorado: Larimer Co., Nov. 1-30, 7 cases.
District of Columbia: Washington, Dec. 24-31, 1 case.
Illinois: Chicago, Dec. 24-31, 11 cases, 3 deaths; Danville, Dec. 17-31, 2 cases, 1 death.
Michigan: At 52 localities, Dec. 17-24, present.
Missouri: St. Louis, Dec. 17-24, 18 cases, 1 death.
South Carolina: Georgetown, Nov. 16-Dec. 31, 8 cases.
Tennessee: Dec. 24-31, Memphis, 3 cases, 2 cases imported; Nashville, 8 cases.

SMALLPOX—FOREIGN.

Austria: Prague, Dec. 3-10, 15 cases.
Ecuador: Guayaquil, Dec. 7-14, 1 death.
France: Lyon, Dec. 3-10, 1 case; Paris, Dec. 10-17, 4 cases, 1 death.
Great Britain: Dec. 10-17, London, 2 cases; Newcastle-on-Tyne, 19 cases; South Shields, 5 cases, 2 deaths.
India: Bombay, Nov. 31-Dec. 6, 14 deaths.
Italy: Catania, Dec. 8-15, 1 death; Milan, Oct. 1-31, 1 case.
Mexico: City of Mexico, Nov. 19-Dec. 10, 3 cases, 1 death.
Norway: Christiania, Dec. 10-17, 1 case, 1 death.
Russia: Moscow, Nov. 27-Dec. 8, 5 cases, 2 deaths; Dec. 3-10, Odessa, 1 case; St. Petersburg, 5 cases; Warsaw, Nov. 5-12, 5 cases.
Turkey: Constantinople, Dec. 4-11, 20 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Dec. 7-14, 3 deaths.
Mexico: Dec. 18-24, Juchitan, 2 cases, 1 death; Texistepec, 2 cases, 1 death.

CHOLERA.

India: Bombay, Nov. 30-Dec. 6, 2 deaths; Calcutta, Nov. 26-Dec. 3, 69 deaths.

PLAGUE.

Arabia: Aden, Nov. 25-Dec. 2, 18 cases, 14 deaths.
India: Bombay, Nov. 30-Dec. 6, 76 deaths; Calcutta, Nov. 26-Dec. 3, 8 deaths.
Straits Settlements: Singapore, Nov. 6-19, 3 cases, 3 deaths.

Cases reported during the week ended Dec. 30, 1904:

CHOLERA.

India: Bombay, Nov. 22-29, 1 death.
Russian Empire: Erivan, Nov. 22-28, 914 cases, 363 deaths; Jelisavetpol, Nov. 16-22, present; Tachken, Nov. 27, 18 cases, 8 deaths; Tiflis, Nov. 16-22, present.
Turkey in Asia: Nov. 28, 72 cases, 43 deaths.

PLAGUE.

Africa: Cape Colony, Nov. 6-19, 5 cases.
Arabia: Aden, Nov. 18-25, 19 cases, 12 deaths.
Argentina: Tucuman Province, Nov. 18, 1 death.
Brazil: Bahia, Nov. 12-26, 6 deaths; Rio de Janeiro, Nov. 6-27, 101 cases, 35 deaths.
Egypt: Tukh District, Nov. 19-26, 2 cases, 2 deaths.
India: Bombay, Nov. 22-29, 74 deaths; Calcutta, Nov. 19-26, 8 deaths; Karachi, Nov. 20-27, 14 cases, 14 deaths.
Paraguay: Ascuncion, Oct. 6, 20 cases weekly, estimated.
Peru: Guadelupe, Dec. 7, present; Lima, Nov. 1-15, 6 cases.

Medical Organization.

ORGANIZATION IN TENNESSEE.

The approaching meeting of the Tennessee State Medical Association leads the *Southern Practitioner* to discuss "this subject of so great importance to every member of the regular medical profession who has his own interest and that of his clientele at heart." The editorial is in part as follows: "The method now in force in so many states is unquestionably the most satisfactory, and promises by far the most beneficial results possible. It is distinctly representative, it places the foundation and basis of representation where it should be, at the bottom; the county societies being the only correct criterion and proper means and method of determining the standard of all who are entitled to the courtesies, the advantages and privileges of membership in our state and national associations.

"What does the member in an east Tennessee county know of the ethical standings of those in the western or middle divisions of our state? Or what can those in one county or section even not as far removed know of the character of others than those in their own vicinity? If a physician is acceptable to his home associates, he should certainly be acceptable to other members of the profession in other localities. This is the method adopted by all organizations, and can but prove most satisfactory in ours. Much might be said in behalf of the recent measures suggested by the American Medical Association for the profession in all states, and the progress so far made is most gratifying, indeed, and shows that it is being almost universally accepted. . . .

"We can but regret that the 'Old Dominion,' the 'Mother of States,' still lags back, and so far has refused to align herself with the large number of her sister states, north, south, east and west. We can but attribute it to a degree of unwise conservatism, a disposition to hold on to old methods, but it is not progressive. While our professional brothers in Virginia have done well, yes, better than a number of others under the old but somewhat loose and indefinite method of the past, we most heartily and sincerely believe that they can do still better under the new order, and we are surprised that its especially representative features have not appealed more strongly to them. However, we can afford to wait if they can, and we firmly believe that it is only a question of time.

"While we have accomplished much in our own state, yet we have not done altogether as well as our sincere desire, but what has been done has been most satisfactory, and we were perhaps too sanguine. We have now sixty-five counties with organized medical societies on the roll of our state association, with a membership of something over 1,200, and although these are the most populous and thickly settled sections of the state, we had hoped that others would have been added before this. Owing to the large area and sparse population, the defective roads and means of reaching them, the same effort has not been made by the committee on county organization that was continued over last April from the preceding years, as in other counties. In our opinion, the committeee has not been as active and energetic as it should have been. This, however, can be remedied in the months yet preceding the annual meeting of the state association. This statement is not made in a captious or critical manner as regards the action of the committee, and we take this method of calling their attention to the matter, and wish to put them on their mettle as it were, and most sincerely hope that an aggressive campaign will at once be entered on. The sooner work is commenced the better results we will have.

"In the thirty counties in which so far no organization has been officially reported and enrolled in the state association, there is, according to the census of 1900, a population of 301,317, while the other sixty-five counties embrace a population of 1,719,099. Even in some of these counties, county medical societies have been organized. In some of these counties the sparse population has necessitated but a limited number of physicians, not sufficient to form an organization, . . . yet we hope that . . . in those counties . . . two or more may unite in the formation of an organization, for which due provision is made in the constitution and by-laws of the state association.

"We have had the opportunity of visiting a few of the county societies during the past year, and in every instance we have found the members showing an interest that can but redound to their good. In two of these counties no organization had previously existed, and but few of the profession there had ever taken much interest in our state meetings, yet in these we found an active membership that we feel confident will be perpetuated and increased. From other counties . . . we have received very encouraging reports. Interesting and harmonious meetings, and in every instance where a county society has been organized for as much as a year, there is a far more agreeable and harmonious feeling between the members of the profession than had previously existed."

Continued Success in Michigan.

From a letter received from the Secretary, Dr. A. P. Biddle, we learn that the membership of the Michigan State Medical Society at the beginning of 1905 was 1,761, a gain of 106 over the year 1903. Considering the enormous gain of 1903 over previous years, the conditions are certainly very satisfactory and the workers in Michigan are to be congratulated.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

(Continued from page 58.)

Operation for Undescended Testicle.

Dr. E. M. Sutton, Peoria, Ill., reported the case of a boy, 11 years of age, a cryptorchid who suffered from strabismus and nervousness, but otherwise was well. In making an incision in the inguinal canal, the testicle was found above the internal ring free; the cord was retained by a band extending posteriorly toward the median line, and upward opposite the second lumbar vertebra. Blunt dissection was resorted to until the cord was freed and the testicle deposited easily in the bottom of the scrotum without tension. The remaining step of the operation consisted in making a buttonhole incision through the bottom of the scrotal sac, posterior to its middle, where the skin is less elastic, catgut stitches inserted through the edges of the skin, and the tunica albuginea in a way which held the end of the testicle attached to the skin, necessitating healing by granulation. Convalescence was uncomplicated; the testicle was permanently fixed in the bottom of the scrotum and did not atrophy.

Objections to attaching the testicle to the bottom of a movable sac are valid, since experience demonstrates the futility of such a method. The Katzenstein operation of taking a flap from the inner side of the thigh is a step in the right direction. However, with the modifications employed in the author's case, considering the satisfactory results, the surgeon can fix the testicle absolutely. Dr. Sutton also reported a case of aneurism of the superior mesenteric artery on which he had operated.

Splenic Anemia.

Dr. Palmer Findley, Chicago, reported a case of splenic anemia in which he removed the spleen with good results. He offered a word of caution as to the hasty diagnosis of splenic anemia wihout giving due consideration to other possible causes for splenic enlargement associated with a secondary anemia, such as malaria and syphilis, and advised splenectomy for only the rapidly progressive cases.

High-Frequency Electricity.

Dr. E. M. Sala, Rock Island, Ill., related his personal experience with the d'Arsonval high-frequency current, and reported cases in which the immediate results are gratifying. He is convinced that the d'Arsonval-Odin apparatus has a very promising future.

The Care of the Axilla After Excavations for Malignant or Infective Lesions.

Dr. John B. Murphy, Chicago, said that extensive dissection of the axilla is not infrequently followed by contracting, painful cicatrices, limitation of motion, edema, neuralgia, etc. These can be relieved or avoided by (a) line of skin incision, (b) immediate grafting or transplantation, (c) muscular implantation and (d) muscular conservation.

Bone Plug for Bone Cavities.

Dr. James E. Moore, Minneapolis, Minn., stated that in January, 1903, von Mosetig reported a large number of successful results from the use of a new bone plug. The plug does not act as a foreign body, nor does it act as a culture medium. It possesses the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. His experience with this material, although limited, has been sufficient to satisfy him that better results can be obtained in treating bone cavities with it than by any older method, and in illustration he reported four recent successful cases. He believes that cases can now be treated successfully with this bone plug in which formerly amputation was performed, as, for instance, in cases of tuberculosis of the wrist and ankle joints.

Excision of the Semilunar Ganglion in Facial Neuralgia.

Dr. A. E. Halstead, Chicago, reported seven cases. The pain may return after the removal of the ganglion. In his cases each ganglion was carefully examined by a competent microscopist. In each ganglion elements were found, and the gross anatomic characteristics of the organ were preserved.

DISCUSSION.

Dr. John B. Murphy stated that in his twelve cases there were four deaths. This large percentage caused him to abandon the operation. Since his last report he has had only one recurrence of neuralgia after the injection of osmic acid.

Mortality, Disability and Permanency of Cure in Surgery.

Dr. Charles H. Mayo, Rochester, Minn., selected this subject as the President's Address. This will be published in The Journal.

Surgical Diseases of the Pancreas.

Dr. D. C. Brockman, Ottumwa, Iowa, said that recent studies of the pancreas show the importance of internal secretion from the islands of Langerhans; also the influence of regurgitation of bile into the pancreatic ducts as a cause of pancreatic inflammation. He mentioned biliary disturbance as the chief cause of pancreatic disease, and stated that pancreatic cysts are believed to be mostly due to this cause. He reported three instructive cases of cyst of the pancreas, and then gave an outline of inflammatory troubles, with special reference to the diagnosis and treatment of acute and chronic pancreatitis.

Cysts of the Pancreas.

Dr. D. W. Basham, Wichita, Kan., referred briefly to the physiologic anatomy of the gland, in order to elucidate the principles underlying the formation of a cyst of this organ. He recounted the symptomatology, and pointed out the difficulty attending the diagnosis. As to treatment, Gussenbauer was the first to marsupialize the sac, and since then this has been a favorite procedure with most surgeons. The only question regarding this method is whether to attach the sac to the abdomen and incise at once or to operate twice. If there is plenty of time and the cyst is not so large that a day or two may make any difference in the result, he thinks it is better to operate in two stages, stitching the sac to the peritoneum and muscles, and opening two or three days later. Excision of the sac is not often practical, but may sometimes be attempted. Often such a course will expose the patient to the risk of contaminating the peritoneal cavity with pancreatic secretions. He reported the case of a tumor of the pancreas in a woman 62 years of age. The tumor was removed. The patient left the hospital at the end of seven weeks, and he has not seen her since. The woman's dyspeptic manifestations were better after the operation than before, but were not entirely relieved. About the first of December the patient began to have serious trouble with her stomach and called a physician, who outlined a tumor in the region of the pylorus, which he diagnosed as cancer of the stomach.

DISCUSSION.

Dr. William D. Haggard thinks inflammations of the pancreas will occupy the most prominent position in the future development of surgery. Disease of this organ is closely allied to surgery for lesions in the upper abdomen. When one stops to think how our knowledge has been amplified in the last two years relative to this sequestered organ, and when one considers that many cases of so-called gastritis, intestinal obstruction, etc., are after all probably instances of pancreatitis, it makes surgeons realize that the lesson has been appreciated, but we have not yet mastered the diagnosis of this as well as other lesions; nevertheless more attention should be addressed to lesions of the pancreas than has been done in the past. He referred to the three types of infection, and called attention to the excellent work done by Opie, Robson and others.

Dr. Brockman has had four cases of pancreatic cyst in the last twelve or fourteen years.

Excision of Elbow Joint for Ankylosis.

Dr. B. Merrill Ricketts, Cincinnati, Ohio, drew the following conclusions:

"(1) Excision of the elbow joint for ankylosis, due to any cause, at any age, is a most rational procedure. (2) If possible, it should be done before or at the time ankylosis is complete. (3) A posterior median incision is the most practical. (4) With care the operation can be done without injury to blood vessels or nerves. (5) Drainage should always be provided for. (6) The arm should be placed on a right angle splint. (7) Results are better when only the articulating surfaces are removed. (8) If there is complete bony union of the articulating surfaces, much more bony tissue must be sacrificed, because disarticulation can not be accomplished. (9) All soft structures cut transversely will unite, but new insertions are formed which destroy their function. (10) All attachments of tendons and muscles should be preserved. (11) All periosteum should be preserved. (12) If excision of the joint is complete, leaving only the ends of the shafts, flail joint can be prevented by approximating their ends with kangaroo tendon at the time of primary operation. (13) Wire or nail may be used, but their removal sooner or later will be imperative. (14) Flail joint rarely results from any form of excision, but is more likely to be found following excision of the entire joint. (15) If flail joint results, a mechanical device may be employed. (16) Injections of alcohol or one or more of the various astringents will increase fibrous tissue, both in quantity and density."

Operative Treatment of Fractures and Sprains.

Dr. A. E. Benjamin, Minneapolis, Minn., stated that all fractures should be examined with the *x*-ray to diagnose positively and to locate them. The ordinary form of treatment of even simple fractures often results in a deformed and crippled limb. The term ununited fracture is a myth; the condition is invariably due to some preventable cause. The habit of using the *x*-ray in all fractures leads to more operative measures, although without its use diagnosis is frequently impossible and treatment uncertain. There is frequently as great a subcutaneous injury from a simple fracture as in a compound fracture, and it is essential that an operation should be performed in such cases in order to prevent a lasting injury to the nerve and muscle tissue. By an operation on these fractures drainage is established, pain and fever lessened, exostosis and the organization of the exudate are less permanent, and necessarily there follows less permanent injury to the soft structures. Associated with fractures there is frequently a sprain or a tearing of ligaments and dislocation of cartilages. The progress of a joint that has been sprained is often slow and discouraging, resulting in a weak and insecure union of ligaments. It is advisable to operate on some sprains, especially where there is a great deal of exudate and pain. By the operative method drainage is established, pain relieved, the ligaments can be stitched in their natural position, the convalescent period is shortened, and a greater proportion of cures result.

The Surgical Considerations of Gastric Dilatation.

Dr. A. M. Pond, Webster City, Iowa, stated that in his last three cases of gastric dilatation due to impairment of the stomach wall, he modified the standard operation. Sufficient time, however, has not elapsed to warrant a description of the operation. In each instance a very satisfactory result was obtained. The success of the operation depends on the patentcy of the pyloric orifice and the ability of the gastric muscle to regain its normal tone. The author believes that gastric dilatation is usually a sequence rather than a primary cause of discomfort, and that it owes its presence to some disturbance of the elemental dynamics of digestion.

Treatment of Acute Perforations of the Upper Abdominal Viscera.

Dr. Van Buren Knott, Sioux City, Iowa, pointed out the importance of the early recognition of such an accident. The symptoms of gastric or duodenal perforation will usually be more intense than those of perforation of the gall bladder. The previous history of the case is of importance in making a differential diagnosis. The treatment is successful in direct ratio to the promptness with which it is instituted. The resulting peritonitis is the most important outcome of the accident, and its treatment in the various cases is similar. He emphasized the value of posture in treatment.

Pneumatocele.

Dr. L. L. McArthur, Chicago, reported a case of pneumatocele, a gas-containing tumor of the cranium. Only 32 cases of this condition have been recorded since 1741. It always originates in connection with either the mastoid or frontal sinuses. It is not to be confounded with emphysema, which is gas in the cellular tissue. Pneumatocele is gas between the pericranium. Incident to the elevation of the periosteum are secondary bony outgrowths, giving the tumor a peculiar "feel." In the preantiseptic era the simple benign pneumatocele became a dangerous affair, because of the frequent connection with the mastoid sinuses, with the potential septic meningitis. Since antiseptic surgery has become well established all these cases recover.

The Value of Skiagraphy in Fractures.

Dr. H. A. Sifton, Milwaukee, Wis., is of the opinion that, when it is possible, the Roentgen ray should be used in the treatment of every fracture. Some urge its use in the obscure or complicated cases only, but the difficulty with this plan is that one can never tell whether or not a fracture is complicated until a radiograph of it is taken. It is the surgeon's duty to look on every case of fracture as a complicated one until it has been shown to be otherwise by a good radiograph. A good radiograph is of value for future information from a forensic standpoint, but no radiograph should be admitted as evidence in any medicolegal dispute unless both parties to the dispute know the conditions under which the radiograph was taken.

DISCUSSION.

Drs. L. L. McArthur, J. W. Andrews, C. E. Ruth, A. I. Bouffleur, M. L. Harris, A. E. Benjamin all concurred in the opinion that the *x*-ray is an important confirmatory aid to the surgeon, but that radiographs should not be admitted as evidence in a court of law.

The Practical Significance of Certain Common Symptoms in the Upper Abdomen.

Dr. J. F. Percy, Galesburg, Ill., said these symptoms are pain from ulcer of the stomach and cholecystitis, with or without stones, and the action of the gastric juice on an open ulcer, either in the stomach or duodenum. Another source of pain is the formation of gas from inhibited peristalsis, due to ulcer or adhesions arising from it. Vomiting was also referred to as one of the symptoms of disease in this region, but in the author's experience it is not as frequent as nausea. Two methods were referred to as aids to the location of lesions in the upper abdomen, one being light finger percussion, eliciting pain over the inflammatory focus, in patients not too obese, and the other the resistance of the costal cartilages on the right side in inflammatory conditions of the gall-bladder and in ulcer of the duodenum or pylorus, as recently pointed out anew by Elliott. The author laid special stress on the effects of chronic infections of the liver and pancreas from ulcer of the stomach and persistent cholecystitis, and cited cases in point. He stated that some of these cases are rarely diagnosed correctly. Biliousness and dyspepsia are the words most frequently used as descriptive of the diagnosis, and on this the treatment is based. The author stated further that a persistent infection will, in an appreciable number of cases, cause death, regardless of the form of treatment which may be instituted, because of the alteration in the functionating tissues of the liver and pancreas.

DISCUSSION.

Dr. John B. Murphy congratulated the essayist on bringing out with greater force the fact that a differential diagnosis between lesions of the pyloric area of the stomach, the head of the pancreas, and the gall-bladder is extremely difficult, and also that he emphasized the periodicity of exacerbations in ulcers of the stomach. A large number of cases of ulcer of the stomach have pronounced exacerbations. They are practically well in the period between the attacks.

Dr. Alex. Hugh Ferguson stated that sudden pain referable to the epigastric region, with tenderness over the gall-bladder, shows that the seat of the trouble is within the gall-bladder, the stone or stones being engaged in the cystic duct. Pain occurring while the patient is in a quiescent state, or occurring after the patient has gone to sleep, points to the gall-bladder rather than to any other organ. An occasional lancinating pain, referable to the region of the gall-bladder and its ducts, points to carcinoma. Pain referred to the region of the ducts is more characteristic of gall-stones. In cases of stone or tumor of the kidney, as well as in tumor of the suprarenal capsule, pain is generally referred to the back. Pott's disease should not be overlooked. Pain referred to the testicle, and radiating into the genitourinary tract, points to the kidney as the seat of the trouble. Still, pain is referred sometimes to these regions from other conditions than stone in the kidney.

Dr. William D. Haggard said that while expertness and refinement in diagnosis are desiderata, surgeons must realize that many of the cases under discussion are not amenable to the niceties and refinement of diagnosis to which attention has been drawn. He referred to the importance of a well-taken clinical history, saying that a great deal of dependence should be placed on it.

Dr. B. B. Davis protested against the habit of making incisions without having made a careful and sufficient study of the case beforehand, but he said that man is more dangerous who does not make such incisions occasionally than the one who does make them before he has made accurate diagnoses. He related a case which he thought to be one of cholelithiasis, yet on operating he found a large appendix turned up underneath the gall bladder, with dense adhesions around the cystic duct. There were no stones found in the gall bladder; it was perfectly patulous, and after freeing the adhesions he could squeeze the bile out without any trouble. He did nothing to the gall bladder, simply removed the appendix, and thus far relief has been complete.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held in San Francisco, Nov. 22, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Resection of Chest Wall for Recurrent Carcinoma of Breast.

Dr. Emmet Rixford exhibited a patient in whom a portion of the chest wall had been resected for recurrent carcinoma. The patient was seen Aug. 15, 1903, with a suppurating carcinoma of the breast, which had been first noticed four months previously. After primary cleansing of the suppurating area with pure carbolic acid, a Halsted operation was performed and the wound healed without difficulty. Eleven months later there was a recurrence at the site of the original operation and the recurrent tumor was adherent to the chest wall. At a second operation this tumor was removed. It was necessary to excise portions of the first and second ribs and about half an inch of the left side of the sternum. The left pleural cavity was opened, the lung collapsed, and the respiratory movements of the mediastinum and heart could be plainly seen. The respirations became very rapid, but if the opening into the pleural cavity was closed by a hand or a towel the lung seemed to expand and the respirations became better. The wound was closed by a large skin flap. Five months after the second operation there are no signs of a recurrence. The skin flap is drawn in at each inspiration. This is the fourth operation of this character which has been performed by Dr. Rixford. One of the other patients subsequently died of local metastases, one developed local nodules which disappeared under x-ray treatment, and one other beside the one here exhibited as yet has shown no signs of metastases. The operation is only justifiable when the patient is in good condition and when there are no distant metastases.

DISCUSSION.

Dr. Barbat suggested the use of some form of artificial respiration in such cases, similar to that used in physiologic experiments. The Sauerbruch pneumatic cabinet, if accessible, would find a place in these operations.

An Unusual Case of Anemia.

Dr. G. H. Evans and Dr. Mary Halton reported a case of anemia of the aplastic type. The patient entered St. Luke's Hospital Sept. 21, 1903. Six years previously he had had "blood poisoning" in the right foot, and three years previously he had lost his right eye in a shooting accident. About two months ago he had a severe nose bleed, and has had another less severe one since then.

Physical examination showed a well-nourished, pale man, with systolic murmurs over the base of the heart and a large ulcer on the outer aspect of the lower part of the right leg. The blood showed 1,150,000 red corpuscles, 7,300 leucocytes, and 30 per cent. of hemoglobin. A differential count of the white cells showed polymorphonuclears 6 per cent., small lymphocytes 91 per cent., large lymphocytes 2 per cent., and eosinophiles 1 per cent. No nucleated red cells were seen, and there was no marked poikilocytosis and no polychromatophilia.

During his stay in the hospital he had several severe nasal hemorrhages, an irregular fever, and, after gradually becoming weaker, he died ten days after admission. Shortly before death his blood showed 770,000 red corpuscles, 2,300 leucocytes, and about 10 per cent. hemoglobin. The differential count of the leucocytes did not differ essentially from the former count except in the absence of eosinophiles. No parasites nor eggs of parasites were found in the feces.

The autopsy and bacteriologic findings were negative except for the deposit of pigment, giving the reaction for iron in the liver and a moderate enlargement of the hemolymph glands about the inferior vena cava. The spinal cord and the bone marrow of the long bones were not examined.

The case here presented may possibly have been a leukemia with a reduction in the number of leucocytes. Such reductions have been observed during the course of acute infectious diseases, and one of the authors has seen it occur coincidently with pregnancy. On the other hand, the case suggests pernicious anemia in many of its features, viz., the high-color index, the marked reduction of both the red and white cells and the autopsy findings. As has been said, no nucleated red corpuscles were found during life, but later, after a search through about half a millimeter of blood, two megaloblasts were found. The case appears to belong to the class described as aplastic anemias, which are in all probability cases of pernicious anemia without the customary regeneration of blood by the bone marrow.

DISCUSSION.

Dr. George Blumer reported a similar case of anemia which he saw recently. During life the patient showed an irregular fever, a palpable liver, and bleeding hemorrhoids with an ulcer in the rectum. The red corpuscles varied from 1,500,000 to 1,100,000, the leucocytes from 4,600 to 3,400, and the hemoglobin from 20 to 19 per cent. Very few nucleated red cells were found, and these were either normoblasts or transitional forms. An average of several differential counts showed polymorphonuclears 7.5, large lymphocytes 2.3, small lymphocytes 90.2 *per cent.* and no eosinophiles. The autopsy showed in general the changes of pernicious anemia except that the signs of regeneration in the bone marrow were very slight. He agreed with the preceding speakers in regarding this type of anemia as pernicious anemia without a reaction on the part of the blood-forming organs.

Dr. Brunn described a child who had enlargements of the liver, spleen and lymphatic apparatus, with marked anemia and with 6,900 leucocytes, which were mostly small lymphocytes. The child died of a streptococcus angina.

Dr. Evans is inclined to regard the last case as one of lymphatic leukemia, with a concomitant infection.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, Nov. 23, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Value of the X-Ray in Diagnosis.

Dr. **L. J. Hammond** reported the case of a patient who had been suffering with pain in his right wrist for more than two years. There was no tenderness to touch nor any visible signs of inflammation, and it was only when the wrist was abducted that the pain was intense. The condition had been variously diagnosed as rheumatism, sprain, tubercular periostitis and tenonitis. Treatment for these had given no relief. The *x*-ray revealed a fracture of the scaphoid bone, the fragments of which were united by a very loose fibrous connection. The interposed fibrous tissue was removed, perfect apposition of the fragments was secured and they were held together by two small silver wire sutures. There was perfect restoration of all the wrist movements, with entire absence of pain.

An interesting point was that, while the patient recalled having fallen with the hand outstretched and abducted, no immediate symptoms of pain, swelling or ecchymosis were sufficiently pronounced to demand surgical aid. Dr. Hammond said that experience in the surgical out-patients' department of city hospitals showed the frequency of fractures of the bones of the wrist and ankle joints without recognition. The only treatment is to secure bony union, which can be done only by securing perfect apposition, either by wiring or by any other of the mechanical means for this purpose. Dr. Hammond believes wiring to be by far the most reliable procedure.

DISCUSSION.

Dr. **Charles Lester Leonard** referred to the obscure character of these fractures. They can only be demonstrated by the *x*-ray. This means of diagnosis is particularly valuable in the slight injuries occurring about the joint, the sprains, fractures and chipping of small fragments within the joint which lead to incapacity of function so important to those depending on their hands as a means of livelihood. He believes it the duty of the surgeon in injuries about the joints to have *x*-ray examinations made to exclude these fractures, for a negative diagnosis is of much value to the patient in a saving of time and in the immediate institution of the proper treatment.

Dr. **Hammond** agreed with Dr. Leonard that fractures of this kind are not rare, are sure to be overlooked and the condition treated as a sprain or as some constitutional fault.

Typhoid Fever in Philadelphia.

Dr. **Randolph Faries** said that typhoid fever does not exist in Philadelphia to the alarming extent that the general public is given to believe. The apparently large proportion of the disease in this city he attributed to three conditions: Errors in diagnosis, cases contracted elsewhere, and duplicate cases. He enumerated sixteen diseases which may be mistaken for typhoid fever. No case should be reported to the board of health as typhoid fever unless a Widal reaction has been taken and unless the urine, feces and catarrhal secretions also have been examined. Especial care should be taken in examining the liver and spleen, in noting the course of the temperature, the nature of the pulse, the amount and kind of stupor, as well as the nervous symptoms present, and a blood count should be made. Dr. Faries believes that, with the municipal improvements of cleaner streets, better surface drainage and perfect under drainage, the abolition of cesspools, houses constructed with better scientific ventilation, careful disinfection of everything whereby typhoid may be transmitted, extreme vigilance on the part of the health authorities in reference to impure milk, adulterated foods, impure water, and a constant instruction to the general public in reference to those foods by which typhoid is often contracted, such as raw oysters, lettuce, overripe and unclean fruits, etc., it is reasonable to suppose that there will come a time when very few cases of typhoid fever, if any, will exist in Philadelphia.

DISCUSSION.

Dr. **Edward Martin**, director of the Bureau of Public Health, observed that statistics show a certain amount of transference of typhoid fever from one case to another, and that the reason for reporting the cases, so far as the public health is concerned, is to prevent this direct transference and to take precautions against a local epidemic. In most cases of typhoid, in the well-to-do, the community is properly protected, but among the cases seen by the corps of assistants to the Bureau of Health the importance of a report is very great. The bureau would rather have a report of a case which is not typhoid, and look it up, than to have the case unreported and a possible spread of the contagion. Disinfection of the dejecta he regards as difficult and thinks we should not be indifferent to the people who get water below our pollutions. In the walking cases the urinary secretions may remain for a week a prolific source of infection. The Bureau of Health has made a statistical study of wells and cesspools and has been astonished to find upward of one hundred in such juxtaposition that the water must be infected. He regards the water supply as the main source of infection and feels that Philadelphia will still be a typhoid-cursed city until it has a filtered water supply.

Dr. **Faries** said that many of the cases are reported too quickly, but that the remedy is difficult since the assistant inspectors of the health department are not allowed to interfere with the family physician. It is, therefore, manifestly the duty of the family physician to be especially careful in his diagnosis. While it is possible to ascertain the exact number of cases outside of the city, and the duplicate cases, it is not possible to estimate those cases of error in diagnosis.

Trachoma Successfully Treated with the X-Ray.

Drs. **W. S. Newcomet** and **J. P. Krall** exhibited a girl of 18 who had been subjected to all the operations for the cure of trachoma without success. She was treated with the *x*-ray from July, 1903, until Jan. 1, 1904. The inflammatory reaction was so intense that it was thought better to abandon the treatment. Later, however, it was found that she could count fingers at close range. The cornea of the eye was entirely clear and only with special illumination could there be seen fine blood vessels. The eye not treated with the *x*-ray showed all the symptoms that the treated eye formerly exhibited. The condition of the patient had been present since infancy, and she had been unable to see across the room. Treatment was given every other day for five minutes for about six weeks, when a burn developed and treatment was withheld. Dr. Newcomet believed the result to be due to the accidental burn produced in the course of treatment.

DISCUSSION.

Dr. **Jay F. Schamberg** referred to a case of trachoma in the Polyclinic Hospital, in which the vascular injection of the cornea was less pronounced than in the case exhibited, but which had a tremendous growth of vegetative excrescences on the conjunctivæ. The man has received about twenty treatments. The growths have almost entirely disappeared in both eyes and the conjunctivæ are fast approaching normal. In technic the eye was exposed by means of a clamp, the upper lid was everted and the clamps held by weights.

Dr. **George E. Pfahler** referred to the paper of Dr. Mayo of London. He did not understand that any burns had been produced in the cases of Dr. Mayo. The face at first was covered with a mask, but later no precaution was taken. The soft tube was placed about nine inches from the patient and the treatments were from three to five minutes in length.

Dr. **Charles Lester Leonard** regarded the case as of much interest both from the aspect of the ophthalmologist and from that of the *x*-ray worker. The condition still present in one eye which had been symptomatically cured in the other he thought showed a marked illustration of the possibilities of the *x*-ray in chronic conditions about the eye. The value of the method, he believes, depends not on the production of a burn, but on a specific action of the *x*-ray on the autolytic ferments contained within the cells themselves. The *x*-ray, he stated, is not a cure-all, but an agency which assists nature by stimulating to action the self-contained elements within the cells.

Dr. **M. K. Kassabian** agreed with Dr. Leonard regarding the stimulating and irritating action of the *x*-rays on the tissues, but he believes further that there is a germicidal or inhibitory action on the germ. He covers the Crookes tube with a dark cloth and darkens the room, preventing injury to the patient from the light because of the excessive photophobia. He attaches the everted eyelids by adhesive plaster to the skin. He had four cases in the Philadelphia Hospital, two acute and two chronic. The acute cases had severe photophobia and lacrimation and were improved after four or five exposures.

DR. NEWCOMET said operators in London are careless. One-half of the men used little or no protection in the treatment, and one man used only wet gauze. Dr. Newcomet uses a shield and as much as possible avoids handling the cases.

Travel Notes.

XXII.

AN INTERSEMESTRAL EXCURSION.*

LEWELLYS F. BARKER, M.D.
CHICAGO.

The division of the university year in Germany into two semesters with a good month's vacation between them in the spring has some special advantages. For the vacation is a real one; the student finds the clinics and the laboratories closed to him during this period; if he wishes to work he must apply at some private laboratory. The month gives excellent opportunity to teaching staff and students for quiet recreation or travel. Many teachers spend the time in a walking, bicycling or boating tour; others take advantage of this season to visit neighboring or distant colleagues, consult various authorities on particular phases of their research, examine new methods or new apparatus recently reported, or attend some one of the various congresses usually held in this period.

Despite the train of snows, rain, frosts and storms which winter, more than usually dreary in Munich, led "out of his Scythian cave," the city had been so interesting, profitable and enjoyable that it was with regret that one made up his mind to leave it. The home instinct which lies deep in human nature soon makes itself felt when once one is comfortably settled, even in a foreign city; it requires an effort to give up more permanent lodgings and enter again on the itinerant life. But the medical traveler who has only a year at his disposal dare not let his "high hopes faint on the warm (*sic*) hearthstone" of a German pension. The vacation must be utilized as well as the semesters if the year is to bring its full quota of experience.

NUREMBERG.

It seemed almost paradoxical to go to old Nuremberg to visit a new hospital, but it is nevertheless true that the American visitor can not afford to neglect a visit to the General Hospital of this artistic "City of the Empire" if it is a part of his mission to look into modern hospital construction in Europe. Just before leaving New York it had been my good fortune, thanks to Dr. Painter's courtesy, to examine in some detail the architecture and arrangements of the New York Lying-in Hospital. It proved to be a great help to have the main features of this triumph of hospital building in mind for comparison when visiting the Nuremberg Hospital and subsequently others of the newer European hospitals

The remarkable commercial development of Nuremberg in recent years has led to such a rapid growth of the city that it now has more than a quarter of a million inhabitants; this fact, together with the compulsory insurance of the working classes against disease in Germany, led to such an increase in the number of applicants for hospital treatment that, a few years ago, the building of a new hospital by the city became a matter of absolute necessity. It took some three years to build it. The plans were so carefully drawn and the work so well executed that the new City Hospital in Nuremberg has served for a model for several others which have been planned since; the new hospitals in Budapest, Copenhagen, Odessa, St. Petersburg, Prague, Rotterdam, Warsaw and Vienna have all, it is said, borrowed and adopted ideas from it.

The hospital, which is situated in the quiet northwestern part of the city, consists of thirty-one buildings, entirely separate from one another above ground, but all connected by means of subterranean tunnels for the conduction of heat, water and light. The buildings, with the exception of the administration and the director's dwelling, are simple externally —almost painfully simple—but one can not refuse to admire the wisdom which curtailed external adornment in order that the more important internal arrangements might be made as nearly perfect as possible. At present there are 946 beds—252 surgical, 417 medical, 121 for venereal diseases (!), 45 for skin diseases, 31 for insane patients, and 80 for overflow cases, medical and surgical. The money for the buildings was supplied by the city and the annual support, outside of the fees derived from patients, comes from the same source. The city government is represented by a civil supervisor, the so-called *Pfleger des Krankenhauses*. The whole medical administration, however, is subordinate to the medical director, Dr. G. Merkel, one of the best known and deservedly popular medical men of southern Germany. The housekeeping, bookkeeping and accounts are in the hands of the business manager, the so-called *Krankenhaus-Verwalter*. The dangers of conflict among these three factors of the administration are avoided by means of rigid definition of the functions of each; each has his own rights and each his own duties, and they are so specific that the machine runs, it is asserted, without friction. The medical director is also the physician-in-chief to the first medical subdivision of the hospital. The other chiefs of subdivisions are chosen from practitioners in the city; each has his own assistant physicians, nurses and orderlies directly responsible to him, and regarding the treatment of the patients in his wards he has a free hand Each "chief" is responsible for the general hygiene, diet and therapy in his particular division; he has to make a daily visit, in the early morning, and where necessary an evening visit also. If called at other times by the assistant physicians on account of an emergency or the grave condition of a patient, the "chief" is expected to promptly respond. Among other duties each chief is required to see that the histories of patients are regularly kept and to make sure that the assistants of his division perform their duties in full. It is his duty to see that an autopsy is performed by the pathologist on every patient dying in his division and to make sure that a proper protocol of the same is preserved. A special paragraph in the regulations states that "it is expected that the heads of divisions will, in the interests of science, utilize and work up as far as is possible the rich observation material at their disposal, calling on the assistant physicians to aid them in their work" If differences of opinion arise as to the medical duties the director has the deciding word.

All over south Germany the hospital nursing is in ecclesiastical hands; so in Nuremberg the nursing is in the charge of a superior deaconess of the Evangelical Lutheran Deaconess Institution of Neuen-Dettelsau. The orderlies (or male nurses) are also deacons. Non-ecclesiastical nurses and orderlies are employed in the insane wards and in the male syphilitic wards only. The hospital is supplied with all modern conveniences in the way of telephones, electric clocks, ice machine and the like, just as in our American hospitals. The assistant physicians live on the first floor of the administration building; in this building, too, are reading rooms, library, consultation rooms and the quarters of the business manager. Near the administration building is the large surgical operating house, quite in keeping in its appointments with the most fastidious requirements of the aseptic surgeon. A larger operating room is reserved for aseptic operations, a smaller one for septic cases. The light is excellent, most of the walls consisting of ground-glass windows, the rest of the walls and the floor of glazed white Mettlach tiles. The whole operating room is swung, as it were, in a warm-air bath, for, in addition to heating room proper, warmed air circulates constantly through cavities beneath the floor and between the double walls and windows. The operating house contains also sterilizing rooms, instrument rooms, dressing rooms, nurses' rooms and a microscopic room—quite in accordance with modern American custom. One detail seemed wise—the provision of two currents for the electric lighting of the operating room at night and on dark days—one for regular use, the other in reserve in case of sudden interruption of the regular current in the course of an important operation.

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* The last article by Dr. Barker, in this series, appeared in THE JOURNAL, Sept. 24, 1904, p. 892.

The main wards of the Nuremberg hospital are, in the interior, very much like those of the Johns Hopkins Hospital in Baltimore, though it must have cost much less to build them. The wards have all the advantages, but also the disadvantages of the pavilion system. With modern ventilating systems, with improved elevator service, and with the newer knowledge of the mode of spread of infectious diseases, the necessity for the pavilion system of construction has largely disappeared; there would seem to be no reason now why the more compact system of hospital building, story above story, should not be returned to. The demands made on medical, nursing and housekeeping staff are enormously reduced in the more compactly built hospital; the administration is, therefore, a much more economical one, and, since hospital administrations are too often more economically inclined than is good for the welfare of the patients, it would seem probable that where endowment is limited the patients will be better cared for, the diseases better studied, other things being equal, in a compactly built hospital than in one arranged in separate pavilions.

The heating, ventilating and lighting systems in the Nuremberg hospital leave nothing to be desired. I was especially interested in the method of disposal of sewage. It seems that a city ordinance prevents the hospital from emptying any unpurified sewage into the city sewers. Accordingly, all the waste water from water-closets, sinks, baths, kitchen and laundry is brought through drains to a special building, where it is clarified and disinfected by the Müller-Nahnsen process. The watery sewage is first mixed with milk of lime, aluminium sulphate and silicic acid, then passed through a sieve to remove larger solid bodies and afterwards led into two large clearing tanks. The latter are about 25 feet deep, the incoming sewage mixing with the contents of the tanks at a level about 15 feet below the surface. Sedimentation takes place in the tanks; the overflow from the first tank fills the second; the overflow from the second is led into the city sewers. The solid bodies held back by the sieve are burned with other garbage in an adjoining crematory. The sediment which collects in the lower part of the tanks is removed from time to time by an electric plunger pump; it is placed in a large filter press, the filtrate running back into the clearing tanks. The residue of solid compressed sediment is carted away and buried; it amounts to about 1.5 cm. (5 cubic feet) a week. The water passing through the clarifying tanks amounts to some 300,000 liters daily. The clearing tanks cost about $8,000 to install; the patent preparation and chalk used to mix with the waste water costs less than $1.00 a day.

Another feature of the Nuremberg hospital which pleased me, one frequently found in sanitariums, but not as often represented in American public hospitals as one would like to see it, is the department for balneotherapy and mechanotherapy. The bathhouse is excellently arranged for hot and cold baths, Turkish and Russian baths, douches, showers, etc.; in addition there are carbonic acid baths, electric tub baths, electric light baths, sand baths, sun baths and mud baths. Nearby are the rooms for gymnastic exercises, massage and apparatus for mechanotherapy

Finally, I must mention among the praiseworthy characteristics of the Nuremberg hospital the number of rooms provided for a single patient, the laboratory for each ward, the excellent Roentgen ray laboratory, the liberal provision of verandas in connection with the wards, the mechanisms for lifting and transporting beds, and the movable iron gratings for the windows of the isolation rooms. The well-organized pathologic laboratory under the direction of Dr. Thorel is also worthy of imitation.

From what I have said it will be obvious that the hospital affords much opportunity for an American visitor to praise; there is but little for him to criticise. He misses, however, the quality of nurse to which he is accustomed at home; there is, further, no nurses' home, for the nurses live in rooms adjoining the wards. Certain hospital features jar on an American's taste, in Nuremberg as in most German hospitals, as for example the permitting of patient's wash basins in the main wards, the conspicuous position given to urinals and bedpans, the unnecessary exposure of patients during clinical examinations, the intimacy of the examining ear with the patient's skin, and the apparent unacquaintance with the utility of towels and screens. But take it all in all, Germany may be very proud of the kind of city hospital of which that in Nuremberg may be chosen as a type.

There is no medical school in Nuremberg, but arrangements are being made by which the hospital and its material will be utilized for the instruction (1) of German medical students during their fifth or hospital-practice year, and (2) of physicians who do postgraduate work in connection with the so-called postgraduate courses (*Fortbildungskursen*) now being organized all over Germany.

Though Nuremberg has had a great industrial awakening, the city authorities and citizens generally are to be congratulated on their efforts to preserve as intact as possible the landmarks of earlier times. In its esthetic characters Nuremberg seemed to me much the same as when I visited it nine years ago. The quaint and picturesque architecture is as interesting as ever, the collections as jealously guarded. You can buy tickets for a lottery of pictures in the Dürer house; the *Gänsemännchen* still steadily holds his double-sided burden in the market behind the Church of Our Lady. Up on Castle Hill the torture-chamber with the "Iron Virgin" excites horror as of yore. The little girl, who, in measured English, used to describe the mysteries of the deep well, is married now, but her account remains to the syllable unaltered. And as we wandered at night through the quaint streets, across the Pegnitz from the Lawrence to the Sebald side and up to the Moritz-Capelle. and again ate sausages and drank black *Tücherbräu* in the little *Bratwurst-Glocklein* we felt that, aside from Rothenburg, there is no place in Germany better suited, perhaps, than Nuremberg to carry one back in spirit to the life and habits of the Germany of old.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Eczema in Infants.

The treatment of eczema in infants, according to *Amer. Med.*, consists first in regulating the diet of the mother if she nurses the child. A mixed diet should be prescribed, with prohibition of meat, wine and coffee.

The local treatment consists in removing all dried exudates from the skin by means of a bland oil, followed by a boric acid wash. This should be followed by a soothing application to calm the itching and pain. For this purpose the following combination is recommended:

℞.	Acidi salicylici	gr. i-ii	06-.12
	Zinci oxidi		
	Pulv. amyli, āā	ʒiv	15
	Lanolini		
	Liq. petrolati, āā	ʒiv	15

M. Fiat unguentum. Sig.: Apply locally.

At night the hands of the infant should be tied so that he can not scratch the diseased areas and produce infection.

In chronic cases of eczema occurring in infancy the following combination containing resorcin is recommended:

R.	Zinci oxidi	ʒi	4	
	Resorcini	ʒss	2	
	Ung. aquæ rosæ			
	Liq. petrolati, āā	ʒiv	15	

M. Fiat unguentum. Sig.: To be applied locally.

Ichthyol is also of value combined as follows:

R.	Ichthyolei	ʒiss	6	
	Acidi salicylici	gr. xv	1	
	Adipis benzoinati	ʒvi	24	
	Liq. petrolati	ʒiv	15	

M. Fiat unguentum. Sig.: Apply locally after removing the crusts by means of olive oil.

Resorcin combined with sulphur is very frequently of service in infantile eczema combined as follows:

R.	Resorcin	gr. xv	1	
	Sulphuris loti	ʒss	2	
	Lanolini	ʒiii	12	
	Adipis benzoinati	℥i	30	

M Fiat unguentum. Sig.: Apply locally to the affected areas.

Internally arsenic frequently produces good results when given in the subacute and chronic forms:

R.	Liquoris potassii arsenitis	ʒss	15	

Sig.: Three drops well diluted in water three times a day.

If this preparation disturbs the stomach the liquor sodii arsenatis should be substituted for it, given in the same sized dose.

Where a strumous diathesis is present the following is of value in order to remove the anemia and for its alterative effect:

R.	Syrupi ferri iodidi	ʒiiss	10	
	Syrupi simplicis q. s. ad	℥ii	60	

M. Sig.: One-half a teaspoonful after each meal, well diluted.

Walker, in the *Internat. Med. Annual*, recommends the high-frequency current as producing constant results, especially in the weeping form. He states that the itching sometimes disappears after the first treatment. The peculiar quality of the waves thus produced, according to Regnier, is that they modify the sensibility even to the extent of producing anesthesia without producing any appreciable contraction of the muscle, and is, therefore, useful in local inflammations and in impaired nutrition. Good results have also been reported by many dermatologists in the treatment of eczema by *x*-rays.

Camphor as an Anesthetic.

Leredde, in *Jour. de Med. Interne*, recommends the following combinations containing camphor as local anesthetics in affections of the skin accompanied by itching:

R.	Camphoræ	gr. xv	1	
	Olei amygdalæ dulcis	ʒiiss	10	

M. Fiat unguentum. Sig.: To be applied locally. Or:

R.	Olei camphoratæ	ʒiiss	10	
	Chloralis hydratis	gr. xv	1	
	Liq. petrolati	℥iii	90	

M. Sig.: To be applied locally. Or:

℞.	Zinci oxidi			
	Pulv. cretæ			
	Olei camphoratæ			
	Aquæ calcis, āā	℥i	30	

M. Sig.: Apply locally to the affected areas.

Digestive Infections of Infants.

The general indications for treatment of gastrointestinal infections of infants, according to an abstract in *Archives of Ped.*, are as follows:

IN ACUTE MILD FORMS.

A purgative is given with intestinal lavage and water internally. After twenty-four hours, skimmed milk or buttermilk may be given. If diarrhea is present and persists, bismuth, benzonaphthol and sodium bicarbonate are advised.

IN THE FORM WITH FEVER.

Purgatives, gastric lavage and a water diet are indicated, with compresses on the abdomen, and should be kept up for three or four days.

IN THE ALGID FORM.

In this form purgatives are contraindicated. Lavage with water diet and lactic acid are indicated, together with warm coverings, warm baths, hypodermoclysis and, if necessary, injections of camphorated oil hypodermically, opium and astringents.

DYSENTERIC FORMS.

Sodium sulphate as a laxative, lavage and a water diet are indicated; milk and buttermilk are not, as a rule, of benefit in these forms and are usually not well borne; decoctions of cereals, bread water, toast water, thin chicken broth, farina and at last milk in small quantities serve the best purpose.

CHRONIC FORMS.

A purgative and a water diet are first indicated, followed by a careful regulation of the diet. Alkalies, astringents and antiseptics should be employed, also some of the digestants are recommended such as pepsin and pancreatin.

Bronchial Asthma in Infants and Children.

La Fétra, in *Archives of Ped.*, states that the great majority of the asthmatic attacks are due to bronchial spasm, therefore the treatment should point toward relaxing them. He recommends medication by inhalation as of first importance. In infants where the attacks so closely resemble capillary bronchitis, he recommends steam impregnated with creosote, twenty drops (1.30) to a pint of water boiling in a croup kettle, which in most cases relaxes the spasmodic condition. In older children the niter paper, with or without stramonium, is useful. When the spasm becomes intense and marked dyspnea is present, chloroform inhalations are indicated.

As soon as the infant can swallow, the following may be given to relieve the symptoms:

R.	Antimonii et potass. tartratis	gr. 1/100		0006
	Pulv. ipecacuanhæ	gr. 1/20		003
	Nitroglycerini	gr. 1/100-1/50		0006-.0012

M. Fiat chartula No. i. Sig.: At one dose, to be repeated every half-hour for three doses, or until relief is procured.

[We should hesitate in advising such large doses of nitroglycerin, repeated so often.]

The author has also derived great benefit from the administration of atropin in doses of grain 1/2000 every two hours until the face flushes. A child of 2 or 3 years can take, as a rule, two or three of the above doses before this symptom appears. After the attack has passed off the atropin should be given two or three times a day. If the stomach shows disturbances it should be emptied by a dose of syrup of ipecac. In cases of long standing the following mixture is recommended:

℞.	Potassii iodidi	gr. xx	1	30
	Morph. sulphatis	gr. 1/3		02
	Tinct. belladonnæ	m. xx	1	30
	Spiritus etheris comp	ʒiii	12	
	Aquæ q. s. ad	℥ii	60	

M. Sig.: One teaspoonful every three or four hours.

Falling Hair.

The *Medico-Chir. Jour.* recommends the following combination to check the falling out of the hair:

R.	Acidi salicylici	ʒiii	12	
	Acidi carbolici	ʒi	4	
	Olei ricini	ʒiii	12	
	Spiritus vini rectif. q. s. ad	℥vi	180	

M. Sig.: To be applied freely to the scalp.

The following is recommended by *Merck's Archives* to prevent the hair from falling out:

℞.	Acidi gallici	ʒi	4	
	Tinct. cantharidis	ʒss	2	
	Lanolini			
	Liq. petrolati, āā	℥i	30	

M. Sig.: To be rubbed well into the scalp at night.

Acute Rheumatic Endocarditis.

The treatment of acute endocarditis as a complication of rheumatism consists in the treatment of the cause and of the heart itself to reduce its increased activity and excitability which necessarily tend to increase the inflammatory condition of the valves.

In the treatment of the cause the patient must be put to bed and quiet instituted. The diet should consist principally of milk. The alkalies should be given in sufficiently large doses to promote elimination and to alkalinize the urine. Water should be given freely with the alkalies, such as potassium bicarbonate or citrate. Alternating with the alkalies or combined with them, sodium salicylate should be given in rather large doses. Salicin in doses ranging from grains five to ten (.30-.65) may be substituted for the salicylates.

As to the heart itself, it should do the least amount of work possible. Its action may be controlled by complete rest in bed, ice-bag to the precordial region or in some cases heat applied to the precordium. When much pain is present over this region small doses of codein or of Dover's powder should be given. When the heart becomes rapid or irregular, small doses of strychnia or alcohol are indicated. Anemia not infrequently is present in a good per cent. of these cases occurring in early adult life, and should be corrected as rapidly as possible along with the essential prolonged rest in bed. When the rheumatism has disappeared and the temperature has dropped to normal the patient may be placed on a combined tonic and alterative treatment, and for this purpose the syrup of ferri iodidum is recommended in moderate doses to correct the anemia and changes in the valves as well as in the blood vessels. Arsenic combined with iron and strychnia is a splendid combination during convalescence, as follows:

℞ Acidi arsenosi	gr. 2/3		04
Strychnin. sulph	gr. ss		03
Ferri sulph.			
Sodii carb., āā	.3i	4	

M. Fiant cap. No. xxx. Sig.: One after each meal three times a day.

Epidemic Cerebrospinal Meningitis.

The treatment of epidemic cerebrospinal meningitis, according to W. J. Wilson in *Jour. Mich. State Med. Soc.*, consists in sustaining life by rectal feeding of peptonized milk with yolk of egg when gastric irritability is present and a tendency to vomit. Lavage should be resorted to and light nutritious food given, such as whey, white of egg, broths and soups, administered at intervals of three or four hours. The sick room should be kept at a temperature of from 68 to 70 degrees F. If marked fever is present, the scalp should be shaved and an ice-cap applied to the top of the head and a bag to the nape of the neck. A mustard footbath is recommended by the author in some cases to relieve the cerebral symptoms. Special attention must be paid to the bowels and kidneys, and if the urine is scanty, high colonic flushings of a normal salt solution should be given at a temperature of 110 degrees F. When active delirium is present hyoscyamin should be given hypodermically in 1/100 grain (.0006) doses.

Suppositories each containing chloralamid grains ten (.65) with or without small doses of belladonna are of benefit to produce sleep.

Large doses of potassium iodid or of sodium iodid in daily doses of from fifteen to sixty grains (1.-4.) should be tried. Mercurial ointment rubbed into the scalp and nape of the neck, morning and night, may be of service.

Medicolegal.

How to Recover Money Paid Illegal Practitioner.—The Court of Civil Appeals of Texas says, in the case of Gaither vs. Lindsey, an action on a contract for the treatment of the defendant's wife, that, in order to recover money already paid for the treatment of his wife, the defendant would have to do more than to prove that the plaintiff was practicing medicine in violation of the law. Unless, in addition, the defendant could show that he was deceived and imposed on, he would not be entitled to recover back money already paid, although the plaintiff could not recover anything from him, since the general rule would apply that money voluntarily paid cannot be recovered. If, however, the plaintiff in any way represented himself to be a practicing physician, when he was not authorized to practice medicine, and the defendant was thereby induced to employ and pay him for professional services, he could recover the money so paid.

May Give Conclusions Without Facts.—The Supreme Court of Iowa says that, in the case of Morrow vs. the National Masonic Accident Association, the only witnesses examined by the association as experts were physicians who had either attended the insured in a professional capacity after his injury or were present and took part in the postmortem examination held. Yet before they were permitted to testify their conclusions as to the cause of death they were required to detail all of the facts on which such conclusions were based. These rulings were, in the judgment of the Supreme court, clearly erroneous, because every conclusion testified to was based on actual knowledge of the physical condition of the deceased, and, further, because the rule has never, to the knowledge of this court, been applied to witnesses who were in fact experts on which they were called to testify. But, notwithstanding the error in the rulings, it must be held that they were without prejudice, because of the fact that in every instance the testimony was made competent under the rule of the district court and the conclusions of the witnesses received. Again, the Supreme Court holds that if there had been no conflict on the question of the cause of death the jury would have had no right to disregard the evidence of the physicians and find independently of it. But when there is a conflict in the evidence on a given point it is the general rule that the jury is not bound to treat the testimony of any witness as conclusive, no matter whether he be an expert or a non-expert.

Unlawful Practitioners—Taxing Itinerant Physicians.—The Supreme Court of Iowa says that the charge in the case of State vs. Edmunds was that the defendant, being a nonresident, assumed the duties of, and publicly professed to be, a physician, and did attempt and profess to heal and cure diseases by dieting his patients and causing them to take certain exercises and to wear glasses furnished by him; that he went about and in various ways solicited persons to meet him for treatment, and did, while so practicing as an itinerant physician, treat and attempt to cure injuries, diseases, etc. Did the acts charged constitute an offense under the laws of Iowa? Section 2579 of the Code defines "physician," "practice of medicine," etc., as follows: "Any person shall be held as practicing medicine, surgery or obstetrics or to be a physician within the meaning of this chapter who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." Section 2,580 provides a penalty to be imposed on "any person who shall practice medicine, surgery or obstetrics in the state without first having obtained and filed for record the certificate therein required." Section 2581 defines an "itinerant physician" as follows: "Every physician practicing medicine, surgery or obstetrics, or professing or attempting to treat, cure or heal diseases, ailments or injuries, by any medicine, appliance or method, who goes from place to place, shall be considered an itinerant physician." This section also provides for a license fee of $250 per annum, the same being payable into the state treasury for the use of the state of Iowa. Such license may issue only to such as hold a certificate from the State Board of Medical Examiners. It was contended that as the defendant did not profess or attempt to cure by any medicine, appliance, or method similar to medicine, but by dieting his patients, etc., his acts did not come within the prohibitions of section 2581. The Supreme Court says that the question here was a narrow one, depending wholly on the construction to be given the words "medicine, appliance, or method." Do they mean a medicine or drug, or something administered as a medicine or drug would be? The court thinks this too narrow a construction. It says that an appliance can hardly be said to be a medicine or drug, and a method may or may not involve the administration of any substance, either internally or externally. True, when general terms follow specific words of a like nature, the general terms are presumed to embrace things and methods of the kind designated by the specific words. But for this rule to apply, it must appear that the general words are of a like nature. This was not true here. Undoubtedly the state has the right to determine what acts shall constitute the practice of the healing art, and it may impose conditions on the exercise of that privilege. Having defined the terms it uses, courts should accept the definition given, and not be too subtle in the use of refined distinctions. To save its people from quacks and charlatans, the state has plenary power to prohibit or supervise the exercise of the healing art. Statutes similar to the one in question have been enacted in many states, and they have been held to apply to magnetic healers (State vs. Parks [Ind. Sup.], 59 L. R. A. 190, with notes and briefs); empirics (Musser vs. Chance, 29 Ohio St. 577; Nelson vs. State Ky., 57 S. W. 501); obstetricians (State vs. Welch, 129 N. C. 579); midwives (People vs. Arendt, 60 Ill. App. 89); Christian scientists and osteopaths, although there is a decided conflict in the authorities as to these two classes of healing (Little vs. State, 60 Neb. 749; People vs. Jones, 92 Ill. App. 445; State vs. Buswell, 40 Neb. 158; contra, State vs. Myloid, 20 R. I. 632); and itinerant practitioners (State vs. Blair, 92 Iowa 28). See also State vs. Heath. 101 N W. 429 (reported in THE JOURNAL Jan. 7, 1905). Cases from other states cited and relied on by the defendant's counsel were not in point, for the reason that the statutes therein construed were not so broad as the one here before the court. The Iowa legislature evidently intended to prohibit the practice of the healing art by the use of medicine or any kind of appliance or methods, except on certain named conditions. The language used is very broad and comprehensive, and covers any and every kind of public profession to cure and heal by the use of any method or device. It confines the practice of medicine to the school or schools regarded as lawful, and does not permit quacks and charlatans to impose on the public. The charge against the defendant was that he was practicing as an itinerant physician without the required license, and it was unimportant, the court says, to inquire as to whether or not he had a state certificate, as this would afford him no protection. There may be some doubt as to whether a non-resident may obtain this certificate, maintain his residence in another state, and practice his profession in Iowa without obtaining the additional license required by section 2581 of the Code. But as to this the court expresses no decided opinion at this time. As to the contention that the license tax is unreasonably high, oppressive, and prohibitive, the court says that, being in the nature of an occupation tax, the state undoubtedly had the right to fix it at such sum as it saw fit. While the practice of medicine is often spoken of as a right, it is not, strictly speaking, a right, but a mere privilege, upon the exercise of which the state may impose conditions such as it deems advisable. The title of the act is, "Of the practice of medicine," and, the court says, the subject-matter is sufficiently expressed. It was error to sustain a demurrer to the indictment.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 31.

1 *Ideal Method of Removing the Vermiform Appendix. H. A. Kelly, Baltimore.
2 Tuberculosis of the Kidney, Ureter and Bladder. J. M. Baldy and Ed. A. Schumann, Philadelphia.
3 Primary Sarcoma of the Stomach: A Report of Three Cases. John A. Sipher, Cleveland.
4 The Reflexes in the Diagnosis of Nerve Lesions Due to Trauma. Henry S. Upson, Cleveland.
5 *The Cause of Death in Cases Operated on of Intestinal Perforation Occurring in Typhoid Fever. J. H. Anderson, Pittsburg.
6 Polyneuritis Complicating Typhoid Fever with Unusual Localization. Alfred Gordon, Philadelphia.

1. **Ideal Appendicectomy Method.**—With a view to devising a method for removing the vermiform appendix which will overcome the difficulties of all methods now in vogue, Kelly has made a pair of crushing forceps with longitudinal grooves on the crushing surface and a bevel above. When this forceps is applied, it requires a force of from 25 to 40 pounds to lock the blades on the appendix, and a force of about 60 pounds to release them after the appendix has been cauterized. The only other special instrument required is the ordinary Paquelin cautery. The method of operation is as follows: The appendix is exposed and the mesoappendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is then used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cecum. The next step, which is the most important one, is to keep the red-hot point of the cautery slowly traveling up and down the groove in the crushing forceps for from 40 to 60 seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent, gristle-like substance in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gaps. The final step in the operation is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures. Kelly has cut off a little piece of the cooked tissue in seven cases and dropped it into a test tube containing agar medium, and in but one case was any growth obtained. The advantages he claims for this method are: Its perfect simplicity. There is at no time any exposure of the infected mucosa, the stump is not ligated or bruised, and thus left as a culture medium for whatever organisms may have lain in it. The appendix is amputated with the cautery and the proximal portion is sterilized and effectively sealed. The inverting sutures are then applied over an area as free from contamination as the rest of the peritoneal cavity.

5. Cause of Death in Typhoid Perforation.—Anderson reports his experiences in 21 cases of laparotomy for intestinal perforation. Twelve patients were operated on within 36 hours after the onset of the symptoms. Of these 9 were for perforation and 3 patients recovered. The remaining 3 cases presented symptoms resembling perforation; 1 case was typhoid appendicitis with peritonitis, 1 of peritonitis from mesenteric lymph gland infection, 1 of obstruction due to round worms in the ileum. These 3 cases recovered, making a total of 50 per cent. of recoveries in these 12 cases. The remaining 9 patients were operated on at varying periods of from two to four days after perforation; all died. Local anesthesia was used in 8 cases, the patients being extremely weak and toxic, and all died. In 9 cases the fecal contents of the ileum were removed through the perforation or by incisions. Four patients recovered; 3 were operated on for perforation and 1 for peritonitis from lymph gland infection. The peritoneum was irrigated with normal salt solution in all cases, with special attention to the diaphragmatic peritoneum. In these 9 cases there was a decided amelioration of the postoperative symptoms, which

leads Anderson to believe that irrigation of the bowel is of importance in preventing the toxemia which results from the absorption of poisons from the contents of the paralyzed bowel. He holds that toxemia is quite as important as peritonitis and insists on the institution of drainage.

Medical News, New York.

December 31.

7 *Effect of Hysterectomy on the Sexual Function. H. N. Vineberg, New York.
8 Difficulties of Anesthetization and Their Correction. Victor C. Pedersen, New York.
9 Hyperacute Melancholia: Case. R. N. Todd, Indianapolis.
10 *The Finsen Method. Milton Franklin, New York.
11 *Antiseptic Treatment of the Puerperal Woman. L. Kolipinski, Washington, D. C.
12 Cerebral Palsies in Children. J. M. Aikin, Omaha.

7. **Hysterectomy and the Sexual Function.**—The conclusion Vineberg draws from his own experience and from his study of the literature on the subject is that whatever other effects the removal of the uterus and ovaries may have on the female economy, it has little or none on her sexual feelings.

10. **The Finsen Method.**—Franklin describes the development of the Finsen method of treating tuberculous diseases of the skin by exposure to the ultra-violet or chemical rays of the spectrum. The description of the apparatus used is complete and doubtless will be of considerable assistance to those who employ this method. Franklin is of the opinion that the Finsen method, when properly practiced, and this necessitates the employment of suitable apparatus, free from glass and of sufficient power, is superior to all known procedures for the treatment of lupus vulgaris. This opinion is the result of close observation of the results obtained at the only place where the method has been properly employed. He says the use of the *x*-ray has been too limited to warrant the positive assertion that it is a specific in lupus. The cases that have been positively cured by the Finsen method are almost without number, while those cured by the *x*-ray are few and scattered and their authenticity shrouded in uncertainty.

11. **Antisepsis in the Puerperium.**—A word is said in favor of irrigation after delivery by Kolipinski, who considers the woman delivered of the new-born child a surgical subject, the victim of wounds of the contused and lacerated varieties, of the uterine cervix, the vagina and its outlet, injuries which, when not protected by art, are the chief cause of puerperal infection. A superficial torn wound of this or of any other part of the body, says Kolipinski, requires surgical treatment which is both curative and preventive. One of the best in thoroughness and efficiency is irrigation, and douching is one form of irrigation. He has used antiseptic douching in normal puerperal cases, and the effects are found to be in every way satisfactory, both in the feeling of general comfort to the patient and in the avoidance of septic fever, or its speedy destruction. He has followed the rule that it is better to flush with too much rather than with too little, and accordingly his method consists in washing out the vagina, the cervix and the vulva, the patient being in the proper position, with a gallon of a solution of boric acid in boiled tepid water, one and one-half drams of powdered acid to the pint. This is repeated three times a day for the first week and then discontinued altogether. The antiseptic vulvar pad is dispensed with or its use left to the discretion or wish of the nurse or patient. Septic fever has not been found to appear in any of the author's normal cases, and the patients have all been well satisfied with the result.

New York Medical Journal.

December 31.

13 *The Value of Stereoscopic Skiagraphy. M. K. Kassabian, Philadelphia.
14 Rôle of the Thyroid Gland in Exophthalmic Goiter Associated with Paralysis Agitans. Alfred Gordon, Philadelphia.
15 *Cysts of the Mesentery: a Case. L. S. McMurtry, Louisville.
16 Surgical Diseases of the Sigmoid. H. D. Niles, Salt Lake City.
17 *Enuresis and Its Treatment. J. Ullman, Buffalo.
18 *Unusual Case of Friedreich's Ataxia. R. N. Van Wart, New Orleans.

13. **Stereoscopic Skiagraphy.**—Kassabian details the principles of this method, the technic for making the skiagrams and the methods of examination of stereoskiagrams. The method is useful for demonstrating the structure of bones, studying the mechanism of joints, localizing foreign bodies and diagnosing fractures, showing the exact position of the fragments, the amount of overlapping or separation, the degree of apposition in deformities, etc. Although the method requires more time and care than ordinary skiagraphy, the results obtained with it compensate for these seeming disadvantages.

15. **Cysts of the Mesentery.**—The case reported by McMurtry was one of sero-sanguinous cyst of the mesentery, arising in the colonic mesentery near the left kidney in a woman, aged 67, who complained of digestive disturbances. The displacement of the colon by the tumor was such that the bowel seemed to enter and emerge from the tumor. The cyst wall was quite thin from distention. The left fallopian tube was attached to the tumor and bled freely when separated. There was no pedicle proper to the tumor, which evidently originated and developed between the folds of the mesentry. The area of enucleation was drained through the lower angle of the abdominal incision, and the abdomen closed in the usual way. The patient made a perfect recovery.

17. **Treatment of Enuresis.**—Ullman says that a solution of atropin, 1 grain to 2 ounces of water, 5 drops to be given at 4, 7 and 10 p. m., together with certain movements and hygienic and suggestive methods to which he refers, will usually give excellent results in the treatment of purely neurotic cases. The movements referred to are as follows: 1. The rectum is freed of feces and massage is applied to the sphincter vesicæ by means of the index finger. The child lies in the lithotomy position and, with the index finger in the rectum, the sphincter vesicæ is gently tapped for from one-half to one minute. 2. A deep circular massage is applied over the hypogastric region for from two to three minutes. 3. The patient, lying in the dorsal position, with the knees tightly drawn together, is told to resist while the knees are drawn apart, and, with the knees widely separated, he is asked to resist while they are drawn together. The same resistant adduction and abduction movements are carried out with the legs. These movements occupy about two minutes. 4. The patient, standing against a wall or door, crosses and recrosses one thigh over the other for a period of five minutes. 5. The patient is next taken across the knee and with the side of the hand the lumbar and sacral regions are sharply tapped very frequently, thus giving a vibratory sensation.

18. **Friedreich's Ataxia.**—This unusual case is presented by Van Wart to show that cases of hereditary ataxia are not necessarily doomed to chronic invalidism. His patient, an adult male, 44 years of age, traced his illness back to the sixth year of life. While never able to perform any heavy work, he could plow, drive and do most of the lighter work about the farm. When 30 years of age he became so disabled that he had to use crutches, and he then became a school teacher, following this occupation until two years ago, when the increasing ataxia in his hands compelled him to abandon this work also. His general condition was good.

Medical Record, New York.

December 31.

19 On What Lines Is the Treatment of Malignant Disease Advancing? Robert Abbe, New York.
20 *Problems Relating to Simple Ulcer of the Stomach. Beverley Robinson, New York.
21 *The "Yolk Cure" in the Treatment of the Underfed. Heinrich Stern, New York.
21½ Trachoma. Albert C. Bardes, New York.
22 Present Attitude Toward the Treatment of Prostatic Hypertrophy. Martin W. Ware, New York.

20. **Gastric Ulcer.**—Robinson considers this subject as it presents itself to the physician and to the surgeon. The cases in which a surgical operation is most likely to effect a cure that it places the knot between the apposed peritoneal sur-

are those of acute ulcer in which hemorrhage occurs suddenly, is profuse, repeated, and the outcome too eminently fatal to permit of the use of medicinal agents or hygiene and time, or those of chronic ulcer, in which the frequent and profuse hemorrhage may be taken as an indication that the degenerated gaping artery of the diseased surface may be obstructed for a while with a clot but will soon, through its removal, bleed afresh. An operation affords the only assurance of a cure. The same is true when perforation of the stomach has occurred, complicating any form of ulcer The sooner the operation is performed the greater the chances of saving life. Although instances of cure without operation are recorded, they are very infrequent, and unless special conditions prevail, such as an empty stomach, very small opening on the ulcer in the stomach, chronic adhesions to adjacent organs, etc., even these instances would not have been possible. Robinson's attitude toward the surgical treatment of gastric ulcer is rather conservative, for as yet the results obtained from operative treatment are inferior to those obtained by proper medical care, especially in cases occurring among patients in affluent circumstances who seek medical advice early and who can carry out with intelligence the necessary dietary and remedial regimen. Hemorrhages in such cases are infrequent and slight and perforations occur rarely. Robinson's treatment is that of others who have given this subject considerable attention One food which he mentions as being of special value when hydrochloric acid is deficient in the stomach is buttermilk, freshly made, and freely taken. He says that in several cases its use appears to have been followed by a permanent cure In the treatment of the accompanying anemia he prefers to make use of the vegetable forms of iron rather than the mineral, which may be more or less irritating locally by their acidity and perhaps slightly corrosive action.

21. The "Yolk Cure" of the Underfed.—Stern again calls attention to the fact that underweight and underfed are not synonymous conceptions; that an individual of underweight but in metabolic equilibrium is not underfed, and that in the real underfed there is always a traceable disease or disorder which, directly or mediately, prevents normal digestion or complete utilization of food stuffs, giving rise thereby to bodily decline. It is absolutely useless to attempt to check bodily decline by forced feeding without paying attention to the condition of the digestive organs and the general assimilatory qualities. As soon as the organism is able physiologically to dispose of the ingesta, the tide of body decay is stemmed in all those instances in which some digestive assimilative disturbance, directly or remotely, stood at the foundation of the malnutrition The treatment of the so-called wasting diseases resolves itself into the prevention of waste. The most potent factor in maintaining physiologic digestion and assimilation is an adequate food supply, one which is sufficient as regards quantity and which the organism is able to anabolize. Stern believes that the diet which he has termed the "yolk cure," one in which the greater portion of the calories yielded and in which the egg yolk forms the only fatty substance, is ideal in these conditions This yolk cure may be modified as needed. The yolk of the hen's egg in the raw or half raw state is digested readily, is well borne, contains a diastatic ferment, does not exhibit fermenting qualities, stimulates gastric secretion, restores nerve force and also contains lecithin. From eight to twenty calories a day and kilogram of body weight are necessary to overcome the condition of underfed. An average yolk contains between five and six grams of fat, representing about fifty calories. The author gives explicit instructions for carrying on this particular dietary and gives a sample menu destined for a consumptive whose alimentary system admits the ingestion of some carbohydrates and of almost normal amounts of proteids.

Boston Medical and Surgical Journal.

December 29.

23 *Ultimate Results of Cauterization of the Lower Turbinate, with Therapeutic Suggestions Based on Histologic Findings. J. L. Goodale, Boston.
24 Standard Records of the Leucocytes in Normal Blood for Reference in Clinical Work. H. F. Hewes, Boston.
25 *Improved Method of End to Lateral Intestinal Anastomosis. Alfred H. Gould, Boston.
26 Bacterial Counts of Boston's Milk Supply. H. W. Hill and F. H. Slack, Boston.
27 Isolation Methods and Precautions in Contagious Disease F. P. Denny, Brookline, Mass.
28 Suspected Homicide Proved to Be Suicide by Strychnia. F. J. Canedy, Shelburne Falls, Mass.

23. Cauterization of Lower Turbinate.—The object of Goodale's paper is to give the results of a histologic examination made into a series of cases which had been previously cauterized for swelling or hypertrophy of the lower turbinates and which had reported later with a recurrence of nasal obstruction. Goodale found that caustic applications to the nasal mucous membrane may cause a loss of the columnar ciliated epithelium with a replacement of this by cells of squamous type. That immediately below the cauterized mucous membrane new connective tissue may be formed, which extends downward to a depth dependent on the intensity of the trauma. That the contraction of the tissues following caustic applications is due to the contraction of this new form of connective tissue, and the consequent compression both of the lymph sinuses and of such cavities as the lumina of blood vessels and glands. That repeated superficial applications of caustics tend to the formation of connective tissue immediately beneath the epithelium, which by its contraction may constrict the lumen of the ducts of the glands and lead to cystic dilatation of the latter, thus contributing to a subsequent return of the nasal obstruction. As to the proper mode of cauterizing: If it is desired to contract a relaxed or distended mucous membrane, we should endeavor to reach its deeper layers where the lymph spaces and blood vessels are situated, producing at the same time a minimum amount of disturbance to the membrane itself. This result is best attained by deep linear applications, as narrow as possible, of chromic acid, or of the galvanocautery, or by submucous cauterization. If it is simply desired to diminish the nasal fluid we may advantageously sacrifice a certain number of canaliculi in the basement membrane by broad, superficial applications to a definite area of the septum and lower turbinates posteriorly. In the event of recurrence of the enlargement after cauterization, it is preferable to dispense with further cauterizing and to proceed immediately to the excision of a definite amount of obstructive tissue.

25. Improved Method of Intestinal Anastomosis.—This is the first of a series of four papers to be published by Gould illustrating changes in technic. The first paper describes an improved method of end-to-lateral intestinal anastomosis. The open intestine is split along its free border for about one and a half inches, and the corners, which project, are trimmed down with scissors so that an oblique opening is left with edges rounded out at the mesenteric border, thus allowing more tissue for sewing. The receiving intestine is opened on its free edge for about two inches, and the distal end of this cut is fastened by a mattress stitch to the mesenteric border of the entering bowel. Guides are placed, with the ends left inside, in such a way that they will invert the cut edges and expose the mesenteric third of the entering bowel side by side with a symmetrical portion of the cut edges of the receiving bowel. On tightening the guides, the remainder of the circumference falls away and allows easy introduction of the first layer of stitches. This layer is a continuous over-and-over No. 0 chromic stitch which starts from one guide and goes directly across to the other, piercing all coats. When the second guide is reached other guides are placed on the sides at regular intervals to assist in accurately matching the cut edges. When the free ends of the dorsal cuts are reached they are altered to make them fit one another, and the suture continued around to the opposite side, where it is tied to the long end left at the beginning of the stitch. The second step is the introduction of an interrupted sero-muscular stitch. Gould has modified the mattress stitch by placing the loop near the cut edge. This rolls the protruding edges down and approximates the peritoneum without the necessity of tucking in. This change might be applied to both sides of the stitch except for the objection faces. The details of this operation which Gould considers original are: 1. The method of trimming the invaginating gut. 2. The method of placing the first layer of stitches. 3. The new mattress stitch.

Lancet-Clinic, Cincinnati.

December 31.

29 *The Choice and Use of Medical Literature. Hugh T. Patrick, Chicago.
30 Why So Many Errors in the Diagnosis of Graves' Disease? J. H. Stealy, Freeport, Ill.

29. This article appeared in The Journal, Dec. 10, 1904.

St. Louis Medical Review.

December 24.

31 Report of a Case of Hypertrophied Prostate, with a Remarkable Number of Calculi in the Bladder; Operation in Successive Stages; Recovery; Presentation of Patient. Bransford Lewis, St. Louis.

University of Pennsylvania Medical Bulletin, Philadelphia.

November.

32 Conjunctivitis Nodosa, with Histologic Examination. G. E. de Schweinitz and E. A. Shumway, Philadelphia.
33 *The Etiology of Congenital Absence of the Tibia. James K. Young, Philadelphia.
34 *Retrodisplacement of the Uterus. H. D. Beyea, Philadelphia.
35 A Practical and Simple Apparatus for Collecting Blood Serum. D. Rivas, Philadelphia.
36 Protozoan of Scarlet Fever; Preliminary Report. Charles W. Duval, Philadelphia.

33. **Congenital Absence of Tibia.**—From a careful examination of cases under his observation, and from a thorough investigation of the literature on the subject, Young is of the opinion that congenital absence of the tibia is due to an injury received in the early months of fetal life, usually about the third month. The cases presented by him would seem to prove that a sudden and a violent pressure on the uterus which would be sufficient to cause inflammation of the soft parts, but not of sufficient force to injure or fracture the bones, would lead to an amniotitis followed by hydramnios which would produce the exact conditions found in these deformities.

34. **Retrodisplacement of Uterus.**—Beyea's article includes the report of a statistical study of 465 cases of retrodisplacement of the uterus operated on by a method of ventrosuspension of the uterus, abdominal primary fixation of the fundus uteri to the anterior abdominal wall, and secondary to ligamentary suspension. The author has used this method for eleven years in 465 cases and it has always proved an efficient operation, has never been complicated, and never produced abnormal gestation nor complicated labor. In order to obtain these results it is necessary to secure the uterus to the anterior abdominal parietes, forward, in an exaggerated normal position, so that in the succeeding weeks, through the mobility of the organ, its traction on the abdominal walls, with, for instance, distension of the bladder, and through change in tension of the abdominal walls, a ligament is formed or pulled out to maintain the uterus in about its normal position, until the pathologic changes described disappear and the normal conditions of uterine support are restored. This ligament must be of just sufficient strength to maintain the uterus forward as a guy rope; must not be attached to nor involve a wide surface of the uterine parenchyma, and the tissue forming the ligament must be of such a character as to undergo hypertrophy or stretching during the growth of the uterus in gestation. Beyea addressed inquiries to the 465 women operated on in the past eleven years and received replies from 272. Of this number, 231, 85 per cent., say that they have been completely relieved and enjoy excellent health; 28, 10.5 per cent., state that they have been benefited, the greater part of the symptoms having been relieved; 13, 4.5 per cent., assert they have received no benefit. The improvement has been lasting in 225. Backache was completely relieved in 215; benefited in 39, and not improved in 17 cases. Headache was completely relieved in 228; benefited in 32, and not improved in 12. Nervousness was completely relieved in 189. The question as to the gain in weight is interesting. There were 63 who failed to take on flesh, and 9 have lost in weight. The remainder all gained between 2 and 40 pounds in weight. As to the time when improvement began, 55 stated that improvement began immediately or very soon after they reached home; 72 began to improve in from one to five months after the operation; 58 in from six to eleven months; 26 did not receive full benefit until a year had passed; 4 for eighteen months and 4 for two years. Beyea has personal knowledge of 5 recurrences of the displacement. In 3 it occurred before the patients left the hospital, in 2, as a result of pneumonia, the coughing causing such a strain on the abdominal walls as to sever the attachment, and in the other the attachment was separated by the resident physician in removing the sutures from the cervix. Another woman, regardless of advice, did heavy lifting immediately after returning home, and the retrodisplacement recurred. In the other case the uterus was retroverted and on opening the abdomen again the ligament was seen attached to the anterior surface of the uterus well below the fundus. Of the 272 women, 153 are married, and of these, 41 have been pregnant since operation; 37 have gone to term and borne a living child; 5 have twice borne a child, 2 having given birth to twins; 1 twice. In none of the 47 labors was there a complication which could be attributed to the operation. Nine of the 153 women have aborted or miscarried, 5 twice, all before the sixth month. There was one death, which occurred eighteen hours after a cervical dilatation and ventrosuspension of the uterus, the operation lasting 30 minutes. The postmortem failed to reveal the cause of death, and the conclusion was that death resulted from surgical shock, for there was a rapid failing heart action. This makes the mortality a little less than .2 of 1 per cent.

Chicago Medical Recorder.

December 15.

37 *Experiments with Radium in Some Nose, Throat and Ear Diseases. Joseph C. Beck, Chicago.
38 *Cases of Pus Infection Simulating Pulmonary Tuberculosis. Robert H. Babcock, Chicago.
39 Bronchoscopy for Foreign Bodies in the Bronchial Tubes. E. Fletcher Ingals, Chicago.
40 Gynecology from the Standpoint of the Neurologist. Archibald Church, Chicago.
41 *Observations on the Different Forms of Operations for the Correction of Septum Deformities. Charles M. Robertson, Chicago.
42 Abnormal Labor. Henry B. Hemenway, Evanston, Ill.
43 Pneumonia Complicating Pregnancy. Darwin R. Stockley, Evanston.
44 Diagnosis of Malignant Abdominal Tumors. G. W. Green, Chicago.
45 Instrumental Treatment of Chronic Gonorrhea. E. A. Fischkin, Chicago.

37. **Experiments with Radium.**—Beck reports his results accruing from the use of radium in the treatment of nose, throat and ear diseases. In a case of primary tuberculosis of the septum, 33 applications of radium bromid were made, each lasting from five minutes to half an hour, given at first every day, later three times a week and finally once a week. The headaches and pains disappeared after the second treatment. After about six treatments the mass looked better and did not bleed so easily on touch. After twelve treatments the patient was able to breathe better, and since then there has been a continued improvement and a diminution in the size of the growth. A case of nasal syphilis was treated intranasally with the result that there was relief from pain and a correction of the odor. In a case of sarcoma of the nose, the radium gave relief from pain and produced sleep, saying nothing of the possibility of the prevention of the recurrence of the malignant growth. Very satisfactory results were also obtained in a case of sycosis. A case of lingua nigra was cured by seven exposures. In a case of secondary tubercular laryngitis the radium failed to give any relief, as also in a case of carcinoma of the larynx with glandular involvement. In a case of chronic suppuration of the middle ear with necrosis, the odor was markedly modified and the discharge lessened. Pains in the ear were less marked. In a number of other painful conditions Beck has found the radium to afford more or less relief from the pain.

38. **Pus Infection Simulating Tuberculosis.**—The first case related by Babcock presented all the constitutional symptoms of pulmonary tuberculosis, but the lungs, though not normal, did not furnish any signs of disease. A thorough examination led Babcock to the belief that it was a case of septicemia originating in a pelvic peritonitis with purulent and circumscribed exudate, and that the indefinite lung find-

ings were due to some pulmonary change resulting from the infection and feeble cardiac action. This belief was confirmed at the operation. The second case was one of suppurative peritonitis due to trauma. The lung findings were very similar to those described in the first case. Three other cases were ambulatory and sought medical advice because of symptoms which they feared were due to an incipient pulmonary tuberculosis. One of these cases was found to be a suppurative appendicitis; a second was a case of cholecystitis, and a third a case of pyosalpinx.

41. **Correction of Septum Deformities.**—Robertson divides his cases into four groups: First, those which may be considered deviations of slight degree. A great majority of these may be treated by the removal of the excess of mucous membrane, cartilage or bone at the apex of curvature. Second, cases where the removal of the apex of the deflection will not suffice. In this class of cases some operation, such as the removal of v-shaped sections or a flap operation, is necessary to render the nostrils patulous. Third, cases which present irregular masses, marked deviations, and probably deep grooves or clefts on the side of the concavity. A window resection is the indicated operation. Fourth, cases in which from internal and violent injury the nasal bones are dislocated or fractured, and the septum is wrinkled or broken, causing obstruction by deflection to one or both sides. In this class of cases an external operation is advised. Speaking of the different forms of operative procedure, Robertson says that the sawing off of a ledge or spur will often give more room than would appear possible at the pre-operative examination. Great care in saving mucous membrane in these cases is not so important as is usually believed, as it is generally hypertrophied and, therefore, a diseased tissue. The precaution of avoiding a perforation is essential. The author comments on the impracticability of v-shaped operations, as made by files and knives, on small deviations, the consequent packing into space until the septum has regained its rigidity. Crushing operations are usually failures; they are brutal and unsurgical, and impracticable because it is impossible to make the circumference of an arc fit into a space the length of a segment of the arc. In most cases where there is no external deformity the Gleason method is the best; packing is necessary for only a short time. It is essential to save all tissue that is not diseased and is still functionating. He also comments on the absence of firm cartilaginous support in the window resection operation, and the liability of one or more perforations occurring duriing operation or healing.

Bulletin of The Johns Hopkins Hospital, Baltimore.

December.

46 *Multiple Primary Carcinomata of the Ileum. C. H. Bunting, Baltimore.
47 A New Office Irrigating Stand. George Walker, Baltimore.
48 Concerning a Case of Suppurating Myositis Caused by Micrococcus Gonorrheæ (Neisser). Norman MacL. Harris and Louis W. Haskell, Jr., Baltimore.
49 Bacterium Cyaneum: A New Chromogenic Organism. Ethel L. Leonard, Los Angeles, Cal.

46. **Multiple Primary Carcinoma.**—Bunting reports two cases. The first, male, aged 52, died from cardiac disease and at the autopsy there were found in the middle portion of the ileum six nodules scattered over a length of intestine of about 50 cm. These nodules varied slightly in size and were situated beneath an intact epithelial surface. They were of a definitely carcinomatous structure, apparently taking their origin from the epithelium of the crypts of Lieberkuehn. There were no metastases in any other organs. The evidence at hand is reviewed to show that all these nodules were primary. The second patient, male, aged 59, was taken ill with symptoms referable to intestinal obstruction and a palpable mass in the right iliac fossa. Exploratory operation revealed an inoperable carcinoma in the cecal region and a second mass in the sigmoid flexure. Carcinomatous tumors were found in the ileum, cecum and sigmoid. They were of the cylindrical-celled adeno-carcinomatous type, with ulcerated surfaces, without involvement of the peritoneum, and without metastases in other organs.

American Journal of Obstetrics, New York.

December.

50 *The Limitations of Operative Intervention in Cancer of the Cervix Uteri. Edward A. Balloch, Washington, D. C.
51 Ectromelus: Case. Henry F. Lewis, Chicago.
52 *Streptococci in Air of Hospital Operating Rooms and Wards During an Epidemic of Tonsillitis. Edward C. Rosenow, Chicago.
54 Movable Kidney. W. M. Sprigg, Washington, D. C.
55 *Conservation of the Natural Resistance of Patients in Surgical Work. Robert T. Morris, New York.
56 An Historical Résumé of Tuberculous Meningitis from Hippocrates to the Middle of the Nineteenth Century. Charles G. Cumston, Boston.
57 Infantile Intestinal Obstruction. J. W. Hyde, Brooklyn.
58 Chondrodystrophia Fetalis. Joseph Brown Cooke, New York.
59 A Case of Indirect Traumatic Rupture of the Uterus in the Eighth Month of Pregnancy; Amputation of the Uterus; Recovery. Joseph B. De Lee, Chicago.
60 Conservatism in Pelvic Surgery. Hunter Robb, Cleveland, Ohio.
60½ Gunshot Wound of the Abdomen Involving the Hip Joint; Report of a Case, with Remarks. L. H. Laidley, St. Louis.

50. **Cancer of the Cervix Uteri.**—After a thorough consideration of this subject, Balloch concludes that the present status of operative intervention in cancer of the cervix uteri is that it is practically useless in cases as they usually come under the notice of the surgeon. In the operable cases the only procedure offering any reasonable prospect of a permanent cure is the so-called radical operation by the abdominal route. Vaginal hysterectomy is useless as a radical operation, but has a place as a palliative measure. Balloch urges that the upper part of the vagina is deserving of more attention, from the standpoint of recurrence, than it has heretofore received. The most promising outlook for these cases, he continues, lies in early diagnosis, combined with thorough and complete operative measures. The starvation of the disease by cutting off its blood supply is a palliative measure worthy of trial.

52. **Streptococci in Air.**—Rosenow made some careful observations to explain the probable source of certain accidental, postoperative, peritoneal infections and calls attention to the following facts: 1. The infections occurred only in the most extensive, prolonged, intraperitoneal operations. 2. Owing to the large number of operations, the operating rooms were often in use from morning until night. These rooms were seldom disinfected. 3. The accidents occurred during the winter months; no adequate system of ventilation was in vogue anywhere in the institution. 4. During this time a number of patients suffering from very severe streptococcus infections were being dressed in the general dressing rooms of the hospital. The same carts on which these patients were dressed were used in transporting other patients to the operating room. 5. An epidemic of streptococcus angina prevailed among internes, nurses, attendants and patients. 6. The streptococcus pyogenes was responsible in each instance. Rosenow is convinced that there is what might be called "hospital air," which, under circumstances such as those mentioned, may become rich in pathogenic bacteria. The streptococcus seems to become more virulent or more numerous during an epidemic of angina due to this cause. Rosenow advises that persons suffering from such an affection should be isolated, and that the operator, the assistant and all connected in the handling of surgical material before and during the operation should wear a proper mouth covering. All sterile surgical material should be exposed to the air as little as possible. All operating rooms should be frequently fumigated with an efficient disinfectant.

55. See abstract in THE JOURNAL of October 8, page 1081.

Annals of Gynecology and Pediatry, Boston.

December.

61 Three Cases of Postoperative Vomiting and the Technic of Some Mechanical Means of Treatment. Richard F. Chase, Boston.
62 Postoperative Anuria. Pathogenesis of Anuria in a Case of Vaginal Hysterectomy for Cancer, with Experimental Research on the Cadaver. (To be continued.) Giuseppe Betagh.
63 *"Stem Pessary for Dysmenorrhea." J. H. Carstens, Detroit.
64 Cystoscopic Measures an Adjuvant in the Treatment of Many Conditions Found in Women. F. M. Johnson, Boston.

63. **Stem Pessary for Dysmenorrhea.**—The points brought forward in this article are substantially the same as those

emphasized in the article by this author which appeared in THE JOURNAL Dec. 10, 1904, page 1740.

Therapeutic Gazette, Detroit.

December 15.

65 Hookworm Disease (Uncinariasis). Thomas W. Dorsett, Willacoochee, Ga.
66 Insomnia and Sleep-induction. Henry B. Hollen, Detroit, Mich.
67 *The Rational Treatment of Erysipelas, with Case Reports. L. C. Davis, Harrison, Neb.
68 *Adrenalin Chlorid in Hemorrhage Complicating Typhoid Fever. M. Clayton Thrush, Philadelphia.
69 Attempted Suicide by Morphin Defeats Suicide by Potassium Cyanid. Henry S. Wieder, Philadelphia.
70 The Therapeutic Uses of Hamamelis Virginica. H. R. Coston, Birmingham, Ala.

67. **Treatment of Erysipelas.**—Davis details his experiences with antistreptococcic serum in the treatment of erysipelas. As the site of injection he prefers the anterior portion of the thigh, about midway between the knee and hip joint, in the body of the quadriceps extensor muscle. The amount of serum to be used will vary in each case. He usually begins by giving 10 c.c. and repeating the dose as often as is necessary. Twenty c.c. may be given at the beginning if needed. It is essential to give enough. His results from its use have been uniformly satisfactory.

68. **Adrenalin Chlorid in Typhoid Hemorrhages.**—Thrush has had an extensive experience in the use of adrenalin chlorid in the treatment of hemorrhage complicating typhoid and considers it superior to other astringents. The drug is particularly valuable in that it is also a decided vascular stimulant, stimulating the heart directly, and by contracting the arterioles it raises arterial tension. He gives 20 mm. doses (1 to 1,000) hypodermically every three hours until the hemorrhage is entirely controlled, when it can be administered per os in 10 mm. doses for the next 24 hours. The usual methods of applying ice to the abdomen, the elevation of the foot of the bed, etc., are recommended as valuable adjuncts in the treatment.

Journal of the Association of Military Surgeons, Carlisle, Pa.

January.

71 Observations in the Russo-Japanese War. Louis L. Seaman.
72 The Apron Stretcher. George A. Lung.
73 *The Operation for the Radical Cure of Varicocele. Augustin Aguirre.
74 Organization and Work of the Maritime Quarantine Service of the Isthmian Canal Commission. Henry R. Carter.

73. **Radical Cure of Varicocele.**—Aguirre describes a new method which consists in employing at the same time transverse resection of the scrotum and the excision of the bundle of varicose veins. The patient is placed flat on the back, the lower limbs slightly adducted. The operation is divided into four stages. In the first stage both testes are pushed toward the inguinal canals, and a pair of very much curved clamp forceps are placed crosswise, pinching up that part of the scrotum to be resected. With a bistoury all the tisues are divided. The forceps are then removed. In the second stage all the blood vesels cut, however small they may be, should be ligated. Complete hemostasis having been thus secured, the third stage is proceeded with, that of dissecting and ligating the varicose veins. The veins once isolated, a double thread of catgut is passed to make the ligatures on the two ends of the varicose veins, and the resection is done between the ligatures. The fourth and last stage comprises that of suturing the wound. This is done by planes, the deepest with catgut and the superficial ones with Florentine horsehair. An asptic dressing covers the wound. This procedure has the following advantages: 1. The resection of the scrotum has for a result the formation of a real and natural suspensory, which holds the testes in good position and prevents a recurrence of the trouble. 2. The wound is of sufficient size to permit of an operation for double varicocele, cyst of the cord, gumma of the testes, etc. 3. The dissection of varicose veins is made easy because one sees at a glance the component parts of the cords and thus avoids wounding the spermatic artery and the vas deferens. The author has used this method in 60 cases. Healing by first intention has followed in all, and the final result has invariably been satisfactory. There has been no recurrence in any case.

New Orleans Medical and Surgical Journal.

December.

75 Puerperal Insanity. E. M. Hummel, Jackson.
76 Acute Suppurative Osteomyelitis; the Importance of Its Early Recognition and Treatment. J. F. Ochsner, New Orleans.
77 Some Remarks on the Treatment of Club Foot by the Method of Lorenz. Report of Cases. J. M. Batchelor, New Orleans.
78 Extrauterine Pregnancy; Its Diagnosis. Report of Cases. Isaac I. Lemann, New Orleans.

Louisville Monthly Journal of Medicine and Surgery.

December.

79 Malignant Growths of the Eye. Adolph O. Pfingst, Louisville.
80 Echinacea Angustifolia. C. S. Chamberlin, Cincinnati.
81 Insults to the Viscera in Abdominal Surgery. Edward Lee Pearce, Louisville.
82 Case of Tetanus in a Child Four Years Old Cured by the Use of Antitetanic Serum. J. M. White, Fort Thomas.
83 A Study of a Case of Bright's Disease. Orville A. Kennedy, Louisville.
84 Hemorrhagic Typhoid Fever, with Report of a Case. B. F. Zimmerman, Louisville.

International Journal of Surgery, New York.

December.

85 A Consideration of Septal Spurs and Deflections. Harmon Smith, New York.
86 Tympanites. J. O'Day, Oil City, Pa.
87 Cranial Injuries. Shelby C. Carson, Greensboro, Ala.
88 Colopexy of the Sigmoid Flexure for Prolapse of the Rectum. Albert L. Bennett, Denver.

Medical Times, New York.

December.

89 Illustrating Cases Due to Eye-strain, with Explanatory Remarks Concerning Them. Ambrose L. Ranney, New York.
90 The Transmission of Phthisis, with a Study of Medical Geography. N. E. Barrett.
91 Nature and Treatment of Chronic Glandular Enlargement in Children. A. N. Ulrich.
92 The Nature and Treatment of Hepatic, Cardiac and Renal Dropsy. A. M. Leonard.

Journal of the Kansas Medical Society, Wichita.

December.

93 Trachoma, or Granulated Lids. Edw. P. Pitts, Atchison.
94 Retrospective View of the Treatment of Pneumonia. D. W. Humfreville, Waterville.
95 Intestinal Union by the Aid of a Hollow Candle. J. D. Riddell.
96 A Case of Deformity Following Fracture of Shaft Femur; Osteotomy and Result. E. E. Morrison, Great Bend.
97 The Influence on Valvular Lesions on Pulmonary Tuberculosis. R. C. Fear, Gardner.
98 Pelvic Suppurations. Charles J. Simmons, Lawrence.

Journal of Mental Pathology, New York.

Nos. 3-4.

99 Two Cases of Familial Heredospinal Atrophy (Friedreich's Type), with One Autopsy, and One Case of So-called Abortive Form of Friedreich's Disease. (Continued.) G. Mingazzini and G. Perusini, Rome, Italy.
100 Case of Left Hemiplegia, with Right Hemianesthesia of Traumatic Origin without Organic Lesion of the Spinal Cord. Pietro Timpano.

American Medical Compend, Toledo.

December.

101 The Anesthetics; Chloroform and Ether. James T. Lawless, Jr., Toledo.
102 The Borderland of Consumption. Paul Paquin, Asheville, N. C.
103 Report on the Use of Acetozone in Septicemia. H. B. Gooding, Leetonia, Ohio.
104 Atrophic Nasal Catarrh. L. R. McCready, Grand Rapids, Mich.

Medical Standard, Chicago.

December.

105 Treatment of Congenital Club-foot and the Modeling Redressment. Frederick Mueller, Chicago.
106 The Non-operative Treatment of Retrodisplacements of the Uterus. Channing W. Barrett, Chicago.
107 Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. Homer M. Thomas, Chicago.
108 The Cure of Chronic Suppuration of the Accessory Nasal Sinuses. William L. Ballenger, Chicago.
109 Autointoxication and Its Treatment. Heinrich Stern, New York.

Maryland Medical Journal, Baltimore.

December.

110 The Rôle Played by Nephritis in Obstetrics. George W. Dobbin, Baltimore.
111 Fournier and His Work. John Ruhrah, Baltimore.

Indiana Medical Journal, Indianapolis.

December.

112 Some Camp-fire Reflections. Theodore Potter, Indianapolis.
113 A Case of Fused Kidneys. August G. Pohlman, Bloomington.
114 Diphtheria Epidemic in the Miami County Orphans' Home; Successful Treatment by Antitoxin; Fifty-six Cases, with Three Deaths. Perry C. Bentle, Mexico, Ind.

Cleveland Medical Journal.

December.

115 *Clinical Studies in Arteriosclerosis. Alfred Stengel, Philadelphia.
116 Value of Various Methods of Estimating Total Nitrogen, Ammonia and Urea in the Urine. Howard G. Haskins, Cleveland.
117 Surgical Treatment of Paralytic Deformities. Walter G. Stern, Cleveland.

118 Some Observations on Hemoptysis. Guy H. Fitzgerald, Albuquerque.
119 Notes on Refraction and Eye-strain in the Case of 206 Second-grade School Children. Leigh K. Baker, Cleveland.

115. See abstract in The Journal, vol. xlii, page 1377.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Annales de l'Institut Pasteur, Paris.

Last indexed XLII, page 1825.

1 (XVIII, No. 6, June.) Sur la vie et les travaux d' Emile Duclaux.
2 *Le Serum antistreptococcique et son mode d'action. Besredka.
3 Role des streptocoques au cours de la scarlatine (scarlet fever). Besredka and Dopter.
4 Isolement de la zymase dans les tissus animaux et végétaux. P. Mazé.
5 Rôle des microbes dans la fermentation alcoolique. P. Mazé and A. Perrier.
6 Sur la fermentation mannitique. U. Gayon and E. Dubourg.
7 Sur quelques propriétés physiologiques des différents venins de serpents. F. Noc.
8 *Action du sérum de cheval chauffé injecté dans le péritoine (hot horse serum). Son utilisation en chirurgie abdominale. R. Petit.
9 (No. 7.) Etudes sur quelques épizooties de l'Indo-Chine. Yersin.
10 Etude du tétanos dit médical ou spontané. H. Vincent.
11 Anatomie pathologique des lésions syphilitiques observées chez les singes anthropoides (apes). Arnal and P. Salmon.
12 *La résorption de l'acide urique et de l'urate de soude. J. J. van Loghem (Amsterdam).
13 (No. 8.) *Etude de l'epuration des eaux résiduaires des villes et des industries (purification of residual water). A. Calmette.
14 L'infection mixte dans la tuberculose chirurgicale. N. Petroff (St. Petersburg).
15 Les anticorps contre les spirilles de la septicémie des poules (antibodies in poultry septicemias). C. Levaditi.
16 Sur l'existence d' un fixateur dans l'organisme de l'animal jouissant de l'immunité naturelle. P. Zabolotnoff.
17 Isolement de la zymase. Revue critique. P. Mazé.

2. **Mode of Action of Antistreptococcus Serum.**—See The Journal, xliii, page 1975.

8. **Hot Horse Serum in Abdominal Surgery.**—See The Journal, xliii, page 1731.

12. **Pathology of Gout.**—Van Loghem corroborates the assumption that uric acid readily dissolves in the body fluids, and that sodium urate is precipitated in the body fluids when they contain a large proportion of uric acid. This precipitation of the crystals of sodium urate does not occur in normal tissues. The urate crystals may be taken up and carried away by the phagocytes. They are identical with the crystals found in the tophi of gout. These findings explain the attacks of gout that follow traumatism. The latter causes an exudation, that is, an accumulation of fluid containing large quantities of uric acid. The precipitation of the urate crystals causes the pain. The attacks that follow the grippe are explainable in the same way. It may be possible to study the therapeutic action of drugs by introducing sodium urate crystals into the body in collodion sacs, thus protecting them against the phagocytes.

13. **Purification of Waters Draining from Factories, etc.**—Calmette affirms that the problem of purifying the residual waters draining from sugar refineries and starch factories has at last been solved. The water is passed through three beds of aërobic bacteria. When it emerges, at the end of six hours, it does not putrefy and it is not injurious to fish. The city of Lille has placed every facility at his disposal for studying the biologic, chemic and chemicobacterial methods of purifying residual waters. He is now making a special study of the waters draining from each of the principal industries of the region, adapting the measures to the special conditions in each, as he relates in detail.

Bulletin de l'Académie de Médecine, Paris.

18 (LXVIII, No. 40, December 6.) Metal Tape Tourniquet.—Appareil hémostatique stérilisable. Lhomme.
19 *L'hyposthénie cardio-vasculaire de la menopause. Pawinski.
20 Prophylaxie de la maladie hydatique. F. Dévé (Rouen).
21 *Sur les ferments métalliques, leur action sur le métabolisme, leurs effets dans la pneumonie. A. Robin (Paris).

19. **Weakness of Vascular System During the Menopause.**—Pawinski has observed a number of cases of women, previously healthy, who during the menopause presented symptoms of cardiovascular hyposthenia, accompanied by nervous disturbances and predisposition to muscular fatigue. Bradycardia is more frequent than tachycardia, and the blood pressure is frequently much reduced. He attributes the trouble to ovarian insufficiency. Treatment should be along the lines of tonic and pressure-raising measures. The prognosis is favorable. The symptoms subside in a few weeks or months.

21. **Action of Metal Ferments on Metabolism and in Pneumonia.**—Robin announces that a solution of a metal, in a proportion of .00009 to .0002 gm. to the cubic centimeter, has a most remarkable action when injected subcutaneously. It displays a physiologic action like that of a true ferment, out of all proportion to the minute amount of the metal employed. The amount of urea may be increased by 30 per cent., in consequence, while there is liable to be a copious discharge of indoxyl in the urine and the uric acid may triple its former figure. The respiratory quotient is increased and the blood pressure transiently raised. The injection is followed also by leucocytosis. As certain of the vital processes are thus stimulated by these metal ferments, as he calls these extremely weak solutions of metals, he has tried to utilize them in the clinic. In pneumonia the phenomena observed during the crisis resemble those that follow injection of the metal ferment. In 14 cases of pneumonia an injection of from 5 to 10 c.c. of the metal solution hastened the crisis, the temperature dropping to normal before the seventh day, but the physical signs were not apparently modified. The metal ferments evidently stimulate the reaction of the organism, re-enforcing the natural resisting powers and superposing on the vital and personal reactions a parallel activity revealed by the more rapid disappearance of the correlative symptoms of the infection. He has treated 15 cases of pneumonia with antidiphtheria serum, normal horse serum, lactoserum or with yeast extracts, and their action seemed to be along the same lines as that of the metal ferments. He regards it as probable that the effect of these serums and of the metal ferments is practically identical. The latter may possibly substitute the former when more is learned in regard to their physical phenomena and biologic action. The therapeutic use of the metal ferments is an attempt to apply in the clinic the new data furnished by physics and chemistry in the last few years in regard to radioactivity, ionization and atomic energy, diastases, zymases, minutely divided metals and catalytic phenomena. The solutions are obtained by passing a small electric arc between metal electrodes submerged in distilled water. The metal passes into the fluid in the proportion of .09 to .2 mm. of the metal used to each c.c. of the fluid. A solution thus made displays a number of the reactions supposed to be peculiar to the organic diastases, and these reactions can be accelerated or inhibited by agents capable of influencing the diastases in the same way. The kind of metal used—silver, gold or platinum—did not seem to make any difference in regard to the results. He suggests that the effect may be due to a condition of the metal atoms similar to that noted in the vacuum of the metal atoms similar to that noted in the vacuum of the Crookes tube, the so-called "radiant state," in which the atoms are separated to the extremest limits, liberated, autonomous in their activity and susceptible of developing more energy. This hypothesis may explain the vital action of arsenic and iodin found normally in the tissues and also the remarkable therapeutic efficiency of certain mineral waters.

L'Obstétrique, Paris.

Last indexed XLII, page 228.

22 (IX, No. 4, July.) De l'allaitement au sein par les ouvrières d' usines, de fabriques, de manufactures (breast nursing by women employed). P. Budin.
23 Experiences with Nursling Consultations.—Six années de pratique d' une consultation hospitalière de nourrissons. C. Maygrier.
24 Ibid.—La consultation de nourrissons de l'hopital Tenon en 1903. Boissard.
25 De la flore microbienne de la bouche du nourrisson (flora of nursling's mouth). C. Jeannin.
26 (No. 5.) Le placenta au cours de l'infection syphilitique. C. Néiis.
27 Sur la pathogénie des paralysies obstétricales. J. Thoyer-Rozat.
28 *Lead Poisoning During Pregnancy.—Intoxication saturnine au cours de la grossesse. R. Lefour.

29 Le plasmode dans le placenta normal. B. et Nattan-Larrier.
30 Des hémorrhagies consécutives à l'expulsion de foetus volumineux. P. Guéniot and L. M. Pierra.
31 (No. 6.) *Diagnostic de la rupture du sinus circulaire pendant le travail (rupture during labor). C. Maygrier.
32 Le petit bassin (small pelvis). L. Demelin.
33 Les déchirures complètes du perinée; périnéorraphie immédiate et périnéorraphie secondaire précoce (lacerations and suture). Plauchu.

28. **Lead Poisoning from Wall Paper During Pregnancy.**—The puzzling case described has already been mentioned in the news columns of The Journal. Lefour comments on it to the effect that we are all living in an atmosphere of lead. The danger from this source in paint has been recognized, but now we have to contend with lead poisoning from wall papers. In 11 samples of papers obtained from different merchants 9 had a basis of lead and 2 of copper. He found 1.2 gm. of lead to the square meter in the paper which contained the least, and 7.68 gm. in the one that held the largest proportion of lead. The latter paper was of the class called velvet paper. Plush papers are probably still more dangerous, as they are constantly shedding a fine dust. In the case described, lead poisoning from the new wall papers was unmistakably the cause of the illness of the parents, of the death of the fetus in the first pregnancy, and of the premature delivery, with great debility of the fetus, in the second.

31. **Rupture of Circular Sinus During Labor.**—In 6 typical cases reported, 3 of the patients were i-paræ; the presentation was always of the vertex, while the children were rather under-sized. The hemorrhage was characteristic. As the uterus contracts, blood is forced out from the ruptured sinus and flows freely, but almost immediately the pressure of the head on the soft parts arrests the bleeding. As soon as the contraction is relaxed, the pressure of the head ceases and blood flows anew. The hemorrhage in one case kept up thus for forty-five minutes, during the entire period of expulsion. If there is no engagement, the hemorrhage is continuous.

Semaine Médicale, Paris.

Last indexed XLIII, page 2053.

34 (XXIV, No. 49, December 7.) *Ether versus Chloroform.—De l'éther ou du chloroforme, quel est, d' après les recherches expérimentales, le moins dangereux? A. Jaquet.
35 Bright Red and Dry Tongue Sign of Tropical Abscess of Liver.—La rougeur vive et sèche de la langue comme signe pathognomonique des abcès tropicaux du foie. H. de Brun.
36 *Fatal Hysteric Hemoptysis. M. N. Pende (Rome). Abstract.
37 (No. 50.) *Etude des localisations dans les noyaux bulboprotubérantiels (hypoglosse et facial) chez l'homme (in man). C. Parhon an d J. Papinian.
38 La valeur diagnostique de l'absence du réflexe aortique de percussion. E. Rondot. Abstract.
39 *Cure of Epilepsy by Ligature of the Superior Longitudinal Sinus. H. Delagénière (Mans). Abstract.

34. **Ether Versus Chloroform.**—This article presents the conclusions deduced from a careful study of the literature of the last decade, in addition to experimental and clinical research. The authors are convinced that chloroform depresses the heart, the respiration and the blood pressure, while ether, in the standard dosage, does not affect these functions. They add that nerve substance exposed to the fumes of chloroform is killed, while ether fumes induce only a transient paralysis. The safety zone is much wider with ether than with chloroform, and the former does not have such an injurious action as the latter on the parenchyma of the various organs when the narcosis is long protracted. The consensus of opinion seems to be that ether is consequently less dangerous than chloroform, and that the pulmonary complications sometimes observed consecutive to ether anesthesia are not so much the fault of the ether as of the anesthetist.

36. **Fatal Hysteric Hemoptysis.**—Pende's patient was an apparently healthy young woman who suddenly began to exhibit symptoms of phthisis after a domestic scene. She coughed much, with dyspnea, the sputa being blood-stained but free from mucus, elastic fibers and bacilli. The fifth dorsal vertebra was painful to pressure, and there was irregular temperature, but no physical signs of a lung affection, although hysteric stigmata were prominent. She improved under suggestion, but the tuberculin test, twice repeated, gave a positive response. Inoculation of guinea-pigs was always negative. She was dismissed apparently completely cured, but succumbed soon afterward to a fulminating hemoptysis. Not a trace of tuberculosis could be discovered at the necropsy.

37. **Localization of the Nuclei of the Hypoglossal and Facial Nerves.**—Parhon gives illustrations of the nerve findings in a case of cancer in the suprahyoid region, comparing the findings with the peripheral disturbances. The conclusions confirm the results of experimental research in regard to the localization of the nuclei of the hypoglossal and facial nerves, as he describes in detail.

39. **Treatment of Epilepsy by Ligation of Longitudinal Sinus.**—Delagénière reports that in operating on an epileptic of 54 the longitudinal sinus was accidentally injured and was tamponed to control the hemorrhage. The patient was freed at one stroke from his epileptic seizures and has had no recurrence during the two years since. The benefit derived suggests that the seizure may be the result of a permanent dilatation of the veins on the surface of the hemispheres, causing irritation of the cortex. If the circulation in the cortex could be modified, the epilepsy would be cured. Delagénière has acted on this assumption in another case since, applying a double ligature to the longitudinal sinus near its end. The technic is similar to that of ligation of the saphena for superficial varices. The results were almost as perfect as in the first case. The patient was a man of 23 who has had no seizures during the three months since the simple intervention, the particulars of which are described in detail.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed XLIII, page 1666.

40 (LXXIV, No. 4.) Beiträge zum Diabetes in der Chirurgie. W. Kausch.
41 Zur Verständigung in der Behandlung der akuten Perityphlitis. Sonnenburg.
42 Ueber doppelseitige Nierensteine (bilateral kidney stones). Treplin.
43 *Progenitur Thyreopriver. Lanz.
44 Beitrag zur Lehre vom Riesenwuchs (giant growth). M. Zondek.
45 Transplantation of Goiter.—Beitrag zur Kropfverlagerung. F. Steinmann.
46 Beitrag zur Beseitigung der technischen Schwierigkeiten bei subkutanen Paraffin-Prothesen. W. Krlin.
47 Ueber den Verschluss des Ductus choledochus durch Echinokokkenblasen und Heilung durch Choledochotomie nebst Radikaloperation. F. Sasse.
48 *Beiträge zur Bauch-Chirurgie (abdominal). J. Bakes.
49 Zwei Vorschläge zur Modifikation der Pyloroplastik. A. Narath.
50 *"Inoculation Cancers."—Gibt es "Impfkarzinome"? R. Milner. (Concluded.)

43. **Effect on Genital Sphere of Removal of the Thyroid.**—Lanz found that dogs, cats, goats and hens are usually unable to procreate after thyroidectomy. He has also observed the same effect in two human subjects. One was a man who was apparently deprived of all sexual functions by complete removal of the thyroid gland. Exhibition of thyroid extract, however, was followed by their gradual restoration. The other subject was a woman. The menses reappeared under thyroid treatment after they had been entirely suspended by thyroidectomy. This patient is unmarried. The other patient is married, but childless.

48. **Abdominal Surgery.**—Bakes mentions, among other experiences, that he has had three deaths for which he believes the scopolamin-morphin anesthesia was responsible. He has used this method of narcosis in 200 cases, but now discards it as uncertain and unreliable, except as an adjuvant for ether, for which it is very valuable, using minimal doses.

50. **"Inoculation Cancers."**—Milner does not regard any of the cases on record as conclusive in regard to the actual occurrence of cancer from inoculation during operations. The cancer cells may be attracted by way of the blood to the site of the wound, or the tissues may be injured by the cytotoxic fluids, etc. It has been found impossible to induce the development of cancer on intact epithelium by implantation of cancer cells, with the exception of the epithelium of the ovary. In every case reported of so-called "inoculation cancer" on any other epithelial surface it is impossible to exclude the possibility of retrograde metastasis or of multiplicity of the tumors. There is no positive observation on record of the unintentional

transmission of cancer from one individual to another of the same species. The prevailing fear of the contagiousness of cancer is probably exaggerated and unfounded, but at the same time none of the present prophylactic measures should be neglected. Further studies of these "inoculation cancers" may lead to interesting and important results. More than 200 articles were reviewed for this monograph, and the data are carefully analyzed and classified, with the above conclusions.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed XLIII, pages 1267 and 1587.

51 (XLII, No. 2.) Ueber Implantations-Recidive von Tumoren. R. Wilmanns.
52 Ueber die Glykogen Reaktion des Blutes und ihre Verwertbarkeit bei chirurgischen Affektionen (of blood). Reich.
53 Zur Resektion der Harnblase wegen maligner Tumoren (of bladder). F. Mathias.
54 Vereiterung des persistierenden Urachus mit Durchbruch in die Blase und in die Bauchdecken (suppuration in urachus). Ibid.
55 Ueber Duodenotomie zur Entfernung von Gallensteinen (gallstones). G. Lefmann.
56 Zur Kasuistik des Darm-stenose nach Brucheinklemmung (after incarcerated hernia). B. Baisch.
57 Die Laparatomie im Dienst der Rectum-Exstirpation. H. Schloffer.
58 Ueber primäre Muskel-Angiome. O. Riethus.
59 Die Principien des Bruchpfortenschlusses bei Crural-Hernien unter Mitteilung einer neuen Methode v. Mikulicz. C. Goebel.
60 Behandlung der Carcinome mit Röntgen-Strahlen. O. Fittig.
61 Fall von Meckel'schen Divertikel ungewöhnlicher Art. L. Hendee (Ithaca).

Berliner klinische Wochenschrift.

62 (XLI, No. 50. December 12.) *Ueber Heilung und Latenz des Diabetes mellitus. H. Leo (Bonn).
63 Kann durch "Griserin" eine "innere Desinfection" bewirkt werden? Petruschky (Dantsic).
64 *Lead Poisoning of Eye.—Die chronische Vergiftung des Auges mit Blei. L. Lewin.
65 Physical Behavior of Solutions in Stomach.—Ueber das physik. Verhalten von Lösungen im menschlichen Magen. P. Sommerfeld and H. Roeder (Berlin).

62. **Cure or Latency of Diabetes.**—Leo analyzes the cases of diabetes which have been published as cured, and describes one personally observed. The patient was a man in the thirties, and he seemed to be entirely free from any trace of his diabetes for a number of months. Symptoms then reappeared, and the literature shows that this recurrence is not exceptional. Some writers assume that it is a new onset of diabetes, but Leo inclines to believe that the disease persists during the interval, although in an imperceptibly latent form. In examining for life insurance it is advisable to pay great attention to a history of diabetes, and persons who have once suffered from the disease should always refrain from overtaxing their carbohydrate-assimilating functions.

64. **Chronic Lead Poisoning of the Eye.**—Lewin has for years been making a study of industrial intoxications and has recently published a large work on their effect on the eyes. Lead poisoning has a particularly pernicious action on the eyes, ranging from transient blindness to atrophy of the optic nerve, from retinitis with albuminuria to paralysis or cramps of the ocular muscles and the corneal opacity noted in persons employed in making the salts of lead. Among 163 victims of lead poisoning with eye disturbances, 122 were men and 41 women, the majority of the women being under 20, while the largest proportion of the men was between 30 and 40. In 36 cases which terminated in atrophy of the optic nerve, 19 of the subjects were women and 17 men. In 167 cases in which the eye symptoms were accompanied by other evidences of the lead poisoning, colic was noted in 79, vertigo in 11, headache in 52, cramps or coma in 47, paralysis in 27, arthralgia in 18 and deafness in 6. In 114 cases of lead affections of the eye, a cure was realized in 40, 22 were improved, 36 terminated in atrophy of the optic nerve, and 16 in death. He classifies 130 cases of these lead ocular affections according to the occupation, a list of 30 trades. One case was traced to wrapping chocolate in metal foil wrappers. There is a long stretch, he remarks, between the disturbances in the eye which could be revealed by ophthalmoscopic examination and those which the subject himself first notices. One eye may be seriously compromised before the patient realizes that anything is wrong. In 127 cases in which the onset was noted, the eye affection developed gradually in 84 and acutely in 43. In 100 persons employed in the vulcanization of rubber, 34 were cured, 25 improved, but 20 were unimproved. Lewin adds that scientific study of industrial intoxications generally has to contend with obstacles purposely thrown in the way by the proprietors.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed XLIII, page 1827.

66 (LXXIV, Nos. 3-4.) *Zur Behandlung des eingeklemmten Bruches (incarcerated hernia). Lessing.
67 Der Epiphysenbruch des Femur im Kniegelenke (fracture at knee). Reismann.
68 *Ueber Enterostomie bei Darmverschluss durch Peritonitis (ileus). Busch.
69 *Ueber Extremitäten-Gangrän im jugendlichen Alter nach Infektions-Krankheiten. Barraud.
70 Zur Diagnose der Pankreas-Erkrankungen. A. Neumann.
71 *Ein Weg zum vesikalen Ureteren-Ende beim Manne. A. Neumann.
72 Ueber Narkosen mit dem Roth-Dragerschen Sauerstoff-Chloroform-Narkosen-Apparat. Oertel.
73 Ueber Situs viscerum inversus. Riechelmann.
74 Stiel Torsion eines soliden Ovarial-Tumors; schwere peritoneale Reizung. Extirpation. Heilung. Nadler.
75 *Die Behandlung der Hydrocele nach einem neuen Verfahren. Klapp.
76 (Nos. 5-6.) Exstirpation eines grossen Myxo-Fibro-Lipoms der Milz-Ligamente mit gleichzeitiger Exstirpation der Milz (of spleen). H. v. Burckhardt.
77 Fall von ungewöhnlich grossen sekundären Lebertumor bei atypischem Schilddrüsenkarzinom (tumor in liver with thyroid cancer). Labhardt und Saltykow.
78 *Surgical Treatment of Epilepsy.—Beiträge zur Hirn-Chirurgie. A. Nast-Kolb.
79 Hemorrhage from Stasis After Contusion of Trunk.—Weiterer Beitrag zur Kenntnis der Stauungsblutungen nach Rumpfkompression. H. Braun.
80 Osteoplastischer Verschluss einer Hernia obturatoria nach dreimaliger Einklemmung im Foramen obturatorium sinistrum. M. Schwarzschild.
81 Myositis ossificans traumatica mit spontanem Zurückgang der Muskelverknocherungen. R. Nadler.
82 Is Toxicity of Cocain Reduced by Adrenalin?—Wird die Giftigkeit des Kokain durch Kombination mit Adrenalin herabgesetzt? J. Thies.
83 Beitrag zu den Affektionen, namentlich der Tuberkulose, der Schleimbeutel in der Beckenhüftgegend (in bursæ of hip). J. Wieting.
84 Beitrag zur Lehre von der chronischen ankylosierenden Entzündung der Wirbelsäule (of spine). D. G. Zesas.
85 Zur Frage der operativen Behandlung der Tuberkulose der grossen Gelenke der Extremitäten und speziell der Resektion derselben (large joints). N. Wolkowitsch.
86 Ein Beitrag zur temporären Aufklappung beider Oberkiefer nach Kocher (turning back the jaw). Enderlen.
87 Experimentelle Untersuchungen über die Durchgängigkeit des Darmes für Bakterien (permeability of intestine). A. Heimberger und A. Martina.
88 Zur Kasuistik und Histologie der kavernösen Muskel-Angiome. K. Keller.
89 Ueber Luxatio pedis sub talo nach vorne mit Talus-Fraktur. E. Deetz.
90 Beitrag zur Lehre von dem Adamantinom. M. Matsuoka.

66. **Incarcerated Hernia.**—Lessing reviews the 165 cases of incarcerated hernia treated at the Königsberg clinic between 1896 and 1903. The majority of the 40 cases of gangrene occurred with femoral hernia.

68. **Enterostomy in Prevention of Ileus.**—Busch advocates prompt enterostomy in case of peritonitis as a means of preventing closure of the bowels from the action of the inflammation around. He reports 2 cases in which ileus due to the action of the existing peritonitis was relieved by immediate enterostomy. In one case an opening was made three times and in the other twice. He emphasizes the great importance of free evacuation of the intestines in every case of peritonitis, without waiting for the suppuration or sepsis to assume large proportions.

69. **Gangrene in the Young.**—Barraud's patient was a young woman whose finger was injured and became red and swollen, but without suppuration. A gland in the axilla also became enlarged and painful. Six weeks later fever developed, with pains in the joints and later in the leg of the opposite side, with gangrene and death. Staphylococci were found in the swollen gland, but not in the white thrombus which plugged the iliac, femoral and hypogastric arteries.

71. **Ureteral Abscess Opened Through the Perineum.**—Neumann describes a case in which he evacuated an abscess at the vesical end of the ureter by way of the perineum.

75. **Treatment of Hydrocele.**—Klapp slits the sac and sutures the tunica vaginalis propria.

78. **Surgery of the Brain.**—The three cases of epilepsy reported were characterized by the traumatic etiology, the com-

mencement of the spasms in a certain part of the body and the absolute failure of all medical measures. The motor region was exposed by a Wagner bone flap in all three. In the first case five small cysts were discovered, and the patient soon succumbed to meningitis which developed after a prolapse of the brain. In the second case the center involved in the spasmodic turning of the head was determined by faradization and excised, the resected portion measuring 6 x 9 x 11 mm. The patient remained cured for six months, but then showed symptoms of recurrence. The brain was trephined again, and this time the patient remained free from symptoms for seven months. In the third (quite recent) case a fibroma was found in the falx cerebri. It was extirpated with good results to date. Reviewing the literature on the subject of the surgical treatment of epilepsy, Nast finds 84 cases recorded since 1889. Of this number 28 were not benefited by the intervention, but 25 were cured for at least a year, and 20 for a period less than a year. Six were improved and five died. Fourteen of the recoveries were in the 35 cases of traumatic Jacksonian epilepsy, and 8 recoveries in the 35 nontraumatic cases. Horsley excision of the cortex was done in 14 instances, with 5 recoveries. The cured cases have been under observation for from three to twelve years. The center involved was determined by electric tests in 11 cases. Only 3 of the 15 cases of general epilepsy were cured, and 13 of the 15 were of traumatic origin.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed XLIII, page 1828.

91 (XX, No. 3, September.) Ueber Phlebektasien des graviden Uterus und ihre klinische Bedeutung. J. Halban.
92 Ueber die Anwendung der Kopfzange bei Beckenendlage (forceps in pelvic presentation). R. Müllerheim.
93 Incarceration cystisch degenerierter Ovarien bei Blasenmole (with vesicular mole). G. Bamberg.
94 *Relations Between Nasopharynx and Genitalia.—Die Veränderungen des Nasenrachenraums bei Schwangeren, Gebärenden und Wochnerinnen. H. W. Freund (Strasburg).

94. Connection Between Nose, Throat and Genitalia.—Freund's later researches have confirmed his announcements in respect to the relations between the female sexual organs and the nose. In 66 out of 100 pregnant women he found hyperemia of the throat and hypertrophy of the turbinals, generally of the lower. These findings persisted throughout the pregnancy and were accompanied by epistaxis in 25 per cent. During the birth act the turbinals swell and induce reflex phenomena in the respiratory organs. These changes in the nose persist during the lying-in period without being influenced by nursing. Hypertrophied turbinals in contact may induce hyperemesis. Congestion and enlargement occur in the throat also, but much less pronounced, and generally only in the tonsils.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed XLIII, page 1859.

95 (LIII, No. 1.) Tubar Gravidität b[illegible] [illegible]der akuter eitriger Entzündung der [illegible]
96 Die Deportation der Zotten und ihre [illegible] [illegible]id.
97 *Ueber die Ovarial Veränderungen [illegible] bei normaler Gravidität (changes in ovaries). [illegible]
98 *Ueber die Diagnose des malignen Chorionepithelioms nach Blasenmole nebst Mitteilung eines neuen Falles. R. Krukenberg.
99 Ueber Embryoma tubæ. E. G. Orthmann.
100 Ueber Adenomyoma uteri. J. G. V. Meyer.
101 Eine seltene Form des Cervix-Myoms. P. Zacharias.

97-98. Vesicular Mole.—Wallart describes the findings in the ovaries in cases of vesicular mole and also during pregnancies, relating the particulars of a case in which a tumor developed after expulsion of a vesicular mole. In eight months metastases had developed in the lungs and in the vagina. Histologically it suggested a large-celled, blood-filled sarcoma. He classifies it as an atypical, malignant chorioepithelioma. Krukenberg also reports another atypical case. He advises prompt extirpation in dubious cases, without waiting for the uncertain findings of histologic examination.

Revista de Medicina y Cirugia, Havana.

Last indexed XLII, page 690.

102 (VIII, No. 11.) *Nuevo metodo de sutura en la operacion de la cura radical de la hernia inguinal. F. D. Roldan.
103 (No. 12.) Profilaxia de la fiebre amarilla (yellow fever). J. Santos Fernandez, [illegible]. Lopez and C. Delgado.
104 (No. 15.) Algo sobre el diagnostico de la diabetes sacarina. J. F. Arteaga.
105 *Complicaciones y tratamiento de las fracturas del maxilar inferior. F. D. Roldan.
106 (No. 16.) Nuevas observaciones de intervencion quirurgica en casos de litiasis biliar. J. A. Presno y Bastiony.
107 (No. 17.) Las corrientes galvanicas y faradicas en el tratamiento de la neurastenia. R. O. Vento.
108 (No. 18.) Algunos detalles sobre la anatomia de los dedos y desarticulacion de las falanges. F. D. Roldan.
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118 (No. 5.) Anatomia topografica de la S iliaca. O. Solis.
119 *Nota sobre el tratamiento del queloide por las inyecciones de tiosinamina. J. A. Presno y Bastiony.

102. Roldan's Method of Treating Inguinal Hernia.—In a typical case described, bilateral inguinal hernia had recurred on both sides. Roldan shows in five full-page illustrations the technic of his method, which does away with a separate suture thread for ligating the sac. The latter is included in the suture of the lower tier. He uses three silk sutures, all passed through a short piece of a drain, tied together in such a way that they will not pull out of the drain. The threads are then threaded in turn in a Reverdin needle and passed through and under the skin to a point 2 cm. from the upper corner of the wound, where they emerge. With one of the threads the lower tier is reconstructed, the needle being passed back and forth through the neck of the sac, as well as through the muscles. The sac is then resected and the tiers above sutured with the other threads, and the ends passed separately through another piece of drain. He never operates if the patient has the slightest catarrhal symptoms in the air passages. He removes the threads in from two to three weeks and has his patients wear a truss, with slight pressure, for six months at most.

105. Treatment of Fractures of the Lower Jaw.—The same author gives a number of illustrations to show the plaster bandage he applies in case of a fractured jaw and also the excellent results in 3 cases. The band passes across the jaw below the mouth, is then crossed at the base of the hair and is crossed again just in front of the vertex. One end is brought down over the cheek to below the chin and the other end over the other cheek, over the shorter end, and over the top of the head again and down to below the chin on the other side. The portion of the bandage where the strips cross at the base of the hair is then cut out and the two sides laced together. A cast thus made holds the jaw immovable while allowing free use of the mouth. It does not encroach on the face beyond the middle of the cheeks.

117. Modified Finsen Treatment of Hydrocele.—Roldan has devised a cooling ring to use with the Dermo lamp. It not only prevents the heating of the apparatus, but it also serves to absorb the heat rays. Applied in the treatment of hydrocele, he found that the lesion subsided entirely during the month after two 8-minute applications of the lamp. The hydrocele always shows transparent in the light of the lamp. The amount of fluid in the case described was from about 60 to 80 gm. The patient was a young man of 17, and his usual occupations were not interfered with in any way, nor were any inconveniences noted from the treatment. The application of the light *per se* is always indolent.

119. Thiosinamin Treatment of Keloid.—Presno relates that a rebellious, recurring keloid was cured by four injections of a 15 per cent. glycerin solution of thiosinamin. The lesion was on the back of the neck and had resisted all kinds of chemical cauterization. The injections were made every third day directly into the tumor which had developed subsequently to acne.

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Original Articles.

THE TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS BY NERVE TRANSPLANTATION.*

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Acute anterior poliomyelitis is generally recognized as an inflammation of the gray matter of the anterior horns of the spinal cord. The cases in which an examination of the spinal cord has been possible in the early stages of the disease have shown congestion of blood vessels, round cell infiltration about the vessels and within the nervous tissue, and more or less destruction of the nervous elements. The paralysis which occurs as a result of these lesions develops early in the disease and is usually extensive, and more so than at later stages. Some of the nerve cells of the anterior horns are so seriously damaged that they are incapable of regeneration, and the muscles formerly innervated from these, atrophy and lose their function. Other nerve cells are only seriously diseased and are still capable of at least partial restoration, and function returns later in the muscles innervated by these cells.

The representation of the muscles within the spinal cord is a matter of dispute and need not concern us in this connection. It is important, however, to bear in mind that in anterior poliomyelitis the muscles that remain permanently paralyzed represent nerve cells of the anterior horns which have degenerated, and that muscles which have recovered represent nerve cells which have regained their function. It is the usual experience that restoration of function in anterior poliomyelitis occurs in some of the muscles which at first were partially or even completely paralyzed, but this restoration, if it occurs, takes place within a few months following the onset of the disease. Certain muscles almost invariably remain functionless.

Medicinal treatment, massage and electricity are of little avail so far as these persistently paralyzed muscles are concerned; but there is in selected cases a hope for surgical intervention. In cases in which only one or two muscles of a group remain paralyzed, we may expect good results by uniting the nerve supply of these paralyzed muscles with a motor nerve in the vicinity, as in this way healthy nerve cells are brought into union with diseased nerve fibers and the latter may regenerate.

This procedure is not permissible within the three or four months immediately following the development of the paralysis, because, during this time, it is impossible to determine accurately which muscles will recover their function and which will not. Muscles that still remain paralyzed after six months are not likely to regain contractile power, and we are of the opinion that at the end of six months would be the most suitable period for operation, although recovery is still possible from operation at a later date.

Those cases in which a whole limb or the greater part of a limb remains paralyzed are not adapted to surgical treatment, and only those cases should be selected in which a few muscles are paralyzed.

Having these facts in mind, one of us (Spiller) proposed to Dr. J. K. Young that in a case of poliomyelitis of over two years' duration, in which the anterior tibial muscle alone was paralyzed, a nerve transplantation might be employed. The patient was a child. Investigations on the cadaver were made by Dr. Young to determine the method most suitable to the case. Dr. Young made an incision 10 cm. in length downward from the head of the tibia in the bony axis of the leg. The incision included the skin and superficial fascia. The deep fascia was divided on a grooved director, exposing the peroneal nerve. The nerve was followed down, and by separating the peroneus longus muscle three divisions were found: 1, The fasciculus of the nerves supplying the upper part of the anterior tibial muscle; 2, the anterior tibial nerve; 3, the musculocutaneous nerve; these divisions corresponding to those found in the cadaver. It was decided to take the upper division, of which there were four or five branches, and perforating the external division, the musculo-cutaneous, the former were united to the outer side of the latter by fine catgut sutures.

Great care was taken not to injure the musculo-cutaneous nerve any more than necessary, and the branches of the nerve which supply the anterior tibial muscle at its upper part were pushed through the incision in the musculo-cutaneous nerve without any attempt being made to separate the nerve fibers from the sheath. Small instruments were used, and the nerves were handled as little as possible.

The nerves which were anastomosed were divided as high up as possible, so that there would be no tension on them. The deep fascia was not closed with sutures. The skin was united by interrupted sutures. Over the antiseptic dressing a plaster-of-paris cast was applied to insure fixation of the limb.

This operation was done Dec. 4, 1902, and the case was reported[1] and the child presented before the Philadelphia Neurological Society, Feb. 24, 1903. At the time of presentation some improvement in the movement of the anterior tibial muscle was observed. At the present date the improvement is decided. The gait is nearly normal, and the child can draw up the inner side of the foot almost with normal power.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Spiller and Young, Jour. of Nerv. and Mental Dis., June, 1903, p. 369.

In some respects this case was an unfavorable one for the operation. The child was too young to appreciate the importance of making voluntary effort to contract the anterior tibial muscle, the mother was not sufficiently intelligent to understand the necessity of bringing the child to the dispensary for regular treatment by massage and electricity, and the long duration of the paralysis made regeneration of the nerve doubtful.

About two months after this operation was done, one of us (Frazier) performed a similar operation in another case of poliomyelitis. The results so far have not been so good as in the case just described, but the child undoubtedly moves its affected limb less awkwardly, and the mother feels convinced that improvement in the gait has occurred. The case is as follows:

History.—J. S., aged 4, was always in good health until two years ago. About this time he was ill for some weeks with pneumonia. Just previous to the pneumonia he suffered from a fall from the hands of his nurse. He had been making some efforts to walk at this time. On recovery from illness his mother says his legs were weak and he was slow in learning to walk. History otherwise negative. An examination of the patient before the operation demonstrated paralysis only in the peroneal group of muscles.

Operation.—Feb. 28, 1903. This consisted in the performance of nerve transplantation in which the musculo-cutaneous nerve was grafted into the anterior tibial nerve.

Result.—The patient was discharged from the hospital on April 5, at which time there was no evidence of any restoration of function in the affected muscles. March 14. Extract from a letter received by Dr. Frazier: "He is getting along pretty well, but his leg seems much thinner and soft, his ankle seems very weak, but in other ways he seems well."

Examination by Drs. Frazier, Spiller and Weisenburg the following week: As far as could be seen there was no material change; that is to say, there was no change in the electrical reactions. The parent of the child seemed to think that he walked a little better and that there was a little less toe drop. This was not manifest to those examining. An infantile palsy brace was ordered for the child.

The operation of nerve transplantation recommended by one of us (Spiller) in these cases was devised in ignorance that any similar attempt had previously been made. It seems, however, that Peckham,[2] in 1900, performed nerve transplantation for the relief of paralysis in anterior poliomyelitis. His operation differed from those described in this paper, in that healthy nerve fibers were cut and united with degenerated nerve fibers. The cases in which this can be done are rare, as the surgeon naturally will hesitate to cut healthy nerves in a limb in which nerve fibers already are paralyzed. In reading the report of Peckham's case, one is struck by the long duration of the paralysis —ten years—and by the rapid restoration of partial function. It is stated that at the end of six weeks the toes could be extended (dorsally flexed) until they were perfectly straight, a motion that had been impossible until after the operation.

DISCUSSION.

Dr. Wharton Sinkler, Philadelphia, stated that he considers this one of the important advances which has been made in the treatment of poliomyelitis and he is sure that it is going to obtain a very prominent position in the treatment of cases where there is paralysis of an isolated muscle or group of muscles. It is frequently found that the anterior tibial group remains paralyzed when all the other muscles of the leg have recovered, and this gives rise to the flail foot which is so frequently seen in children suffering from this disease. The usual plans of treatment by electricity, massage and everything else which have been tried, have proved futile and he believes that there is a good field for this operation. He believes that a similar operation has been successfully done a number of times in cases of facial paralysis, that is, anastomosis of the seventh nerve.

Dr. Albert E. Sterne, Indianapolis, declared that nerve anastomosis is a new thing applied in a practical way in this affection. Experimentally, it was done some years ago, even before the transplantation by tendon suturing had been attempted. Dr. Weiner of Chicago has had a great deal of experience and has reported a number of cases, with excellent results in tendon transplantation for poliomyelitis. Dr. Sterne has done the operation a number of times, not only anteriorly but by taking the posterior tendon and bringing it through between the bones of the lower extremity in late cases of poliomyelitis. Care must be taken that the motor axis be exact. If this operation of nerve suturing can be efficiently done and the results demonstrated, so that nerve implantation will exert the effect of tendon transplantation, it would be the rational thing to do, because the nerve force will establish a practically normal function of the muscles already in existence. In tendon transplantation, on the other hand, to a certain extent, a particular group of muscles is disabled. Nerve implantation leaves all the muscles normal. In the old cases that usually come, unfortunately, after the disease has been in progress and has run its course for several months, or even years, the ordinary methods of massage, electricity, etc., are of little avail. In cases seen at the very beginning of the disease, where the acute manifestations are still present, these methods will meet with as good or better results than any other. When the period of regeneration has not yet begun, or during this period, if treatment is instituted results are far superior. When cases are permitted to go along until the regenerative period comes on, then the same results will not be obtained. Early interference with radical measures of a natural character, such as electricity and massage, are the proper measures, but in the late cases nerve implantation may well be the proper thing to do, if it take the place effectively of tendon transplantation. But even here other mechanical measures should not be neglected, for if they be persistently carried out they accomplish at least an added local nutrition to the wasted extremity and prevent its retardation of growth.

Dr. David I. Wolfstein, Cincinnati, considers that early interference in cases of anterior poliomyelitis is an exceedingly illogical procedure, because one would have to know to what extent the cord is diseased and to what extent the muscles are going to atrophy; otherwise, after surgical interference, atrophy might take place at a later date. If it is certain that the nerve to be selected originates from healthy nerve cells, nerve implantation might be the best method, but one can not be certain to what extent the anterior cortical cells are involved. Dr. Wolfstein is not convinced that electric treatment and massage in anterior poliomyelitis ever does much good. Massage does some good. A certain amount of tone is restored to the nervous system that depends on the amount of damage done the cord and the nerves involved.

Dr. C. C. Hersman, Pittsburg, Pa., declared that, in his opinion, six months would be rather early to operate. He has a case which has been under observation for three and one-half years, in which the use of the arm is slowly returning, which would not be improved by operation, as there are no normal nerves in the arm. For the last year, motion has been returning and the patient has some use of the arm. It is possible that he will eventually use it fairly well, though he will never have a perfect arm, as it is much smaller than the other. This motion returning after two years at least of non-use of the arm, seems to indicate that six months would be too soon to interfere. The return of motion might be attributed to the operation; on the other hand, if the child became worse, the parents and friends would attribute the worse condition to the early interference, and it would be better to wait twelve months at least.

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[2] Providence Med. Journal, January, 1900, p. 5.

Dr. T. G. Weisenburg, Philadelphia, stated that the first case mentioned he saw both before and after the operation, and there was a very marked improvement. In the second case the improvement was not so great.

Dr. Howell T. Pershing, Denver, Colo., said that while in a disease that leaves such sad results as this one must be on the lookout for every improvement in treatment, it seems that the results of such an operation would have to be very critically examined before one could assign to it any definite value; certainly more than one or two cases would be necessary. Although most of the improvement usually occurs within three months, or at the most within six months, yet occasionally under the use of massage and electricity some improvment occurs in a muscle that has long been out of use, and after such an operation treatment would be apt to be applied with especial care. Dr. Pershing asked how the axis cylinders of the nerve are supposed to act on the muscle. He disapproved of the treatment of all cases of poliomyelitis in the early stages with electricity and massage. In any case of inflammation affecting the nerve centers the indications for rest ought to be observed until the inflammation has completely subsided.

Dr. Albert E. Sterne, Indianapolis, stated that he sees a large number of these cases and sees them early, and that in those cases where early remedial measures are taken the most excellent results are achieved. It is an absolute error to wait in these cases. No possible damage can be done with ice bags on the spinal column; it is only unfortunate that they exert so little action as they do. They are used in other conditions of inflammation; not to use them here is equivalent to cutting down the wires if the telephone is out of order. Electricity can do no possible harm in these cases seen early after the beginning of the inflammatory process. In these cases active measures do good, and waiting for the process of regeneration is not permissible.

Dr. W. G. Spiller, Philadelphia, stated that they are not at all radical in advocating this method of treatment. They should use it with a great deal of caution, and have said that the cases should be selected. He thinks that neurologists whose attention is directed to the subject will acknowledge that those cases of poliomyelitis in which the paralysis is limited to a small number of muscles are numerous; not a majority, but still numerous. In answer to Dr. Pershing's question, he stated that the subject of regeneration at the present day is a matter of great dispute. A few years ago most neurologists regarded this question as settled, and believed that the axis cylinders grew out from the central stump, and a regeneration from the peripheral portion of the nerve fiber. Later investigators have shown that the peripheral stump takes part in the regeneration. It is probable that the regeneration which occurs in the peripheral stump is not permanent, unless there is union with the central stump. The method recommended depends on the union of peripheral portions of diseased nerve fibers with healthy nerve cells and their axis cylinders. The period that should elapse before the operation is done is, of course, a matter of uncertainty. The longer the operation is postponed the less likely is it to be successful. It seems that six months would be the proper period; perhaps others may prefer a longer period. When this operation is done after a sufficiently long period, when further restoration of motor power is improbable, it can not in any way injure the child. The muscles have already become paralyzed, and cutting the nerve fibers supplying these muscles can in no way injure the child. The inserting of these diseased nerve fibers into the healthy nerve does not injure the nerve if properly done. Not all cases will be successful, but when the operation is successful decided advantages will have been gained over the method of tendon transplantation, because in tendon transplantation the muscle or muscles that have been diseased are thrown out of function entirely and use other muscles to perform a function which they have not been called on to perform heretofore. Nerve anastomosis restores the function of the paralyzed muscles where it is successful. The operation which Peckham performed in 1900 is remarkable on account of the long duration of the paralysis before the operation was performed and the rapid restoration of power. It differs from the operation here suggested in that healthy nerve fibers were cut and anastomosed with diseased nerve fibers. This Drs. Spiller and Frazier have not proposed, as by this operation, in most cases, one certainly causes paralysis in the region in which these healthy nerve fibers are distributed, and the operation is of very limited utility. Dr. Spiller is in the habit of using massage in poliomyelitis. He believes in all cases of paralysis it is our duty to keep the muscles in as good tone as possible until by natural processes their function is restored. Massage and electricity, he thinks, are useful in all cases of paralysis, especially in cases where recovery may be hoped for by natural means.

INTESTINAL OBSTRUCTION IN CHILDREN.*

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I shall take up in this paper the chief symptomatic factors in intussusception, strangulated hernia, postoperative bands, etc., Meckel's diverticulum, devoting the major portion of my time to intussusception.

INTUSSUSCEPTION.

This disease, barring a few accidental cases, is one that demands prompt surgical interference. Each successive case I see impresses me with the necessity of making operations of urgency in these cases, and of not temporizing with air inflation or water injections. The diagnosis is not difficult, although the symptomatology, as given in former text-books on diseases of children, etc.. should be rewritten with a view of placing all stress on blood or bloody mucous stools, and not on the presence of a sausage-shaped tumor.

In over 60 per cent. of a series of 28 cases seen by me, 24 of which I operated on, no tumor of any kind was palpable per rectum or through the abdominal wall. I do not find, on searching my histories, a single acute case in which blood, bloody stool, bloody mucus or bloody serum was not found, either on the diaper, in the commode, or expelled from the anus after digital examination.

Symptoms.—Sudden pain is almost invariably the first symptom that the child manifests, then a degree of shock varying in intensity, and efforts at defecation take place; these are followed by manifestations of spasmodic pains; a peculiar whining cry or fits of crying. In the first hour or two the abdomen is lax, and no marked evidences of pain are produced on palpation; tumor is not felt unless the intussusception is of considerable extent and is taking place rapidly. After a few hours, depending entirely on the degree of obstruction, abdominal distension and evidences of complete obstruction occur. Although some feces and gas may be expelled with the bloody rectal contents mentioned, they are due entirely to the fact that these contents were below the point of obstruction. When a tumor is felt it is not usually the proverbial sausage-shaped tumor of our didactic days, but is more apt to be round or nodulated and moderately movable. Recently, in operating on a subacute case of six days' duration, a tumor was found that in every possible manner simulated a freely floating kidney.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

There is invariably an accelerated pulse and an elevation of temperature of from one degree to two degrees and a half. I feel that the temperature noted in the majority of my cases has been due to absorption of some of the decomposed, foul-smelling, bloody rectal contents that were and are present in every case of over six hours' duration. In two instances the symptoms were of a subacute variety and rather puzzling, no blood having been observed in either case, only a little mucus, and in neither was there complete obstruction noted.

Subacute Intussusception.—Case 20.—(Operative Case 19.) Operated on after a period of six days duration with recovery. I am indebted to both Francis and Joseph Huber.

DR. JOSEPH HUBER'S REPORT.

"N. U. was seen for the first time Sunday, Jan. 25, 1903 (the prior history having no bearing on the present illness, is therefore omitted). The child looked well; temperature was 99. He complained of pain in the abdomen; the pain was paroxysmal in character and not localized in any special area. The mother was positive in her statements that the bowels had moved twice daily up to the previous twenty-four hours.

Codein, gr. 1/6 hourly, high injections, and cold or warm applications were advised.

January 26, restless night; temperature 99, same paroxysmal pain, slight resistance of right rectus, bowels moved twice after injections, a. m. and p. m.

January 27, temperature 96.6, condition the same; restless, with pain in paroxysms all night.

At 11:30 a. m. I saw the boy in consultation for the first time.

Examination.—General condition excellent, pulse good, about 80 to the minute; respiration natural and not accelerated; tongue clean, no odor to breath; heart and lungs negative.

Abdomen: both recti tense, no pains in right iliac fossa; palpation negative, as was also examination per rectum; no retention of urine or delay in the urination; no evidence of shock or collapse. The patient insisted on getting out of bed to use the chamber. Between the paroxysmal pains he would play with his toys and took great pride in blowing a fish horn. No blood or mucus in the stools at any time.

Symptoms.—Pain referred to the umbilical region and tenderness in this area were constant. Pressure over McBurney's point negative. Colicky pains, recurring at irregular intervals and severe in type, caused the boy to roll about and cry out. Both recti tense. There was some interference with the functions of the bowels, as they did not act as readily as in health. No urgent symptoms being present, it was decided to await further developments. If no improvement occurred in twenty-four hours an exploratory laparotomy was suggested, the suspicion tending in the direction of a mild inflammation of the appendix.

January 28: Temperature 100, pulse 104; p. m. temperature, 99; restless all night, pains in paroxysms continued. Two good fecal movements followed injections, made by nurse. Dr. John F. Erdmann was now requested to see the patient in consultation, and suggested an early exploratory operation.

January 29: Temperature 99, pulse 110; very restless and in pain all night. Bowels moved well (distinct fecal masses) after injection. The necessary arrangements having been made, the child was sent to Gouverneur Hospital and operated on by Dr. Erdmann at 3:30 p. m.

DR. ERDMANN'S REPORT.

When I first saw the patient, with Dr. Joseph Huber, he had all the manifestations of an appendicitis without any shock. He had had some so-called results from enemata. I suggested to them that the boy be submitted to operation as soon as possible.

Examination.—He was admitted to the hospital the next morning, Jan. 30, 1903, for operation, and when under ether, on abdominal and lumbar palpation no tumor was found in the appendicular region; but on subcostal palpation, a tumor about the size, and absolutely the shape of an infant's kidney was displaced and could be brought down into the right iliac region. This mass would slip back into the loin exactly as a floating kidney would, but it was evident that the tumor was intraperitoneal.

Operation.—The abdomen was opened, with a view of exploration, through the right rectus. Digital examination detected a tumor involving the cecum and colon with a slight portion of the ileum. This tumor proved to be an intussusception, which was readily reduced; the appendix was removed, and the abdomen closed without a drain. The patient made a perfect recovery and was discharged to his home in ten days.

This case, without question, was one of those varieties, subacute in character, no adhesions interfering between the separate layers of the intussusception, in which the bowel was not sufficiently constricted to produce the characteristic discharge or to induce complete obstruction. When I saw the child I spent quite a length of time at the history, with the possibility of an intussusception in view; but at this time all manifestations were those of appendicitis, except the constitutional manifestations due to pus, which one would naturally suspect at the end of five or six days, and I therefore suggested, as above stated, exploratory laparotomy. The question of appendicitis was readily eliminated when the child was under the anesthetic.

Movements of the bowel occurred with mucus, spasmodic pains with intervals of from one-half hour to an hour, a tumor not palpable until anesthetized, and then simulating in size, shape and motility a floating kidney. The condition only demonstrated by exploration.

Case 28.—(Operative Case 24.) The second case was one of eight days duration in a girl 22 months old, seen on the third day by one of our leading pediatricians. A diagnosis was not made. The case was seen by me on the eighth day, with the following signs and symptoms.

Symptoms.—A history of spasmodic pains, the child getting in the knee-chest position and crying out at intervals of thirty minutes. In the interim the child was either quiet or whining. Mucus was present, but no blood. Movements of the bowels occurred daily, but were due to rectal feeding. There was a movable tumor in the right side, but having no distinct outline. The child was in shock.

A diagnosis of intussusception with subacute symptoms was made.

Operation.—At the operation a gangrenous, irreducible, ileocecal intussusception was found. The appendix and ten inches of the ileum were excised. End to end suture anastomosis was employed. The patient died in six hours.

In this case I was satisfied that an intussusception existed although an appendicular mass had been suspected by the attending physicians.

Spontaneous Reduction.—Case 26.—A short time ago a case was referred to me by Dr. Francis Huber at about 11:30 in the morning. As I was unable to reach the house before 2 o'clock, I sent my nurses and assistants to prepare for operation so that no time should be wasted. On their arrival at 1:30 o'clock, they were told that the child had just had a distinct fecal movement, so that operation would not be necessary. The history of the case is as follows:

History.—Baby, 5 months old; was well up to 6 p. m. of the preceding day, when suddenly it was taken with a rectal discharge of pure blood, followed by vomiting. The mother said the child had agonizing pains, occurring at frequent intervals. When seen by Dr. Francis Huber at 11 o'clock of the following morning, i. e., the morning after the onset, the child was greatly depressed; the abdomen greatly relaxed; no stools since the preceding day; no tumor was palpable externally:

rectal examination was followed by the escape of about one ounce of offensive bloody discharge; no mass to be felt in the rectum or bimanually. The history further showed that an enema had been given some time before midnight, but nothing in the line of injections had been used following this time until the patient was seen by Dr. Huber. He, feeling that the symptoms were so pronouncedly those of intussusception, deemed it unadvisable for further interference other than surgical.

I was then called and ordered all preparation, as above stated, when, at 1:30 I was telephoned of the distinct fecal movement having taken place, and that the child's general condition was that which we see after a reduction of intussusception.

This spontaneous reduction evidently took place somewhere between twelve and fourteen hours after the injection had been used, and followed within an hour after the abdominal and rectal examination made by Dr. Huber. The mother said that from the time of the examination the vomiting and pain ceased, and that between 1 and 1:30 p. m. the bowels began to act.

The after-history of this patient was also typical of the cases we have reduced by operative procedure—that is, there was a foul-smelling, greenish diarrhea, which is almost invariably present, and is due to a superficial necrosis of the mucous membrane. In a comment by Dr. Huber on this case to me later, he said that in view of the history, symptoms and appearance of the baby with its foul enteritis (characteristic), he concluded that this was a fortunate case of spontaneous reduction, feeling that there could be absolutely little doubt on this score. I, personally, feel that this case was reduced largely through the manipulation, abdominal and rectal palpation, which simulated a massage. I certainly do not feel that the enema given about midnight could have had any influence whatever at so remote a time.

In the 28 cases seen by me twenty-four were operated on. One operative treatment was refused. Two are recorded as reduced shortly after the use of large enemata with inversion. One was recorded as a case of spontaneous recovery (see case No. 26) twelve or fourteen hours after injections had been used.

TREATMENT.

Rectal enemas in the first few hours are not productive of harm, but may, though rarely, be followed by reduction. This occurred but three times in the 28 cases seen by me.

Admitted that one meets occasionally with a reduction by the use of enemas, nevertheless this very important fact must be remembered, i. e., that the whole mass may be reduced but the ileocecal junction and one or more inches of the ileum. This being so, all the symptoms clear up for a time. They again return and necessitate operative interference at a time when the conditions of this region are not nearly so favorable to reduction, and may even require excision. This condition was well demonstrated in my sixteenth case, a male child, seven and one-half months old. Duration eight and three-fourths hours. injection used by the father, a well-known pediatrician, Dr. H. M. Silver, and myself was followed by a perfectly tranquil picture, but realizing the possibility of this condition of incomplete reduction, we all felt that the risk of exploration would be far less than that taken by leaving matters rest for farther manifestation. That our fears were not groundless was proved by the evidence of a mass at the cecum, which consisted of almost three inches of the ilium and the entire appendix. Reduction was readily accomplished, the appendix was removed, and recovery followed.

I should, therefore, not feel satisfied that reduction had taken place, even if the child should have no further manifestations of pain, etc., unless this was followed in a short time by a movement of the bowels that we could feel satisfied had come from beyond the supposed site of the previous intussusception; and that in the waiting interval for a movement we should be prepared to proceed at a moment's notice with the operative measures.

The use of enemas previous to operating is offered as a suggestion, and I can say that clinically it is of very valuable asistance, as there is no doubt that the injections reduce a portion of the intussusception, and any agency or procedure that limits operative time must of necessity diminish shock in direct proportion.

Although these little patients bear operative interference quite well, it is quite significant that my greatest mortality rate occurred in those cases which required the longest time for reduction, and that these cases were also the ones of longest duration. Enemas as a means of reduction are not advised after six hours time has elapsed from the first positive symptoms, as, after this period, much valuable time is lost by such procedure.

Anesthetic.—Chloroform has been the anesthetic used in all cases operated on by me, for the theoretical reason that vomiting may be a causative factor in producing this condition; therefore, the anesthetic that is the least liable to induce postoperative vomiting, which might reproduce the intussusception, should be used unless its danger to life in other ways is greater.

Operation.—The abdomen is prepared as in all emergency operations. The incision is invariably made by me in the middle third of the right rectus, and does not usually exceed two inches in length; the index finger explores the abdomen and then, if the tumor can not be delivered on the abdominal wall or into the incision, the latter is enlarged. Should the tumor be of considerable size, it is advisable, and even necessary, to reduce it in part as it lies in the abdomen, by compressing the distal end of the tumor in the proximal direction, i. e., so that the escaping intussusceptum can be seen or felt escaping toward the cecum in colonic or ileocecal varieties, and toward the duodenum in the enteric variety.

Traction as a means of reduction should never be used except in the lightest possible manner and then only with a view of directing the expulsion of the intussusceptum in its proper course.

Sometimes reduction occurs with a distinct pop; this is seen in the colonic and enteric varieties, but when the ileocecal valve is the part of the mass, great difficulty is often met with in reduction of the final portion. A little patience and gentle compression, aided with a backward and forward motion of the unreduced mass, allied to attempts at reduction and production of the condition is usually followed by success.

Occasionally a blunt instrument introduced between the intussuscipiens and the intussusceptum is of benefit in breaking up any adhesions, and may also be employed to dilate the tonic, contracted intussuscepiens.

When, as reduction proceeds, the tumor advances toward the right iliac region, it is advisable to bring the mass out of the abdomen before finishing the reduction. In each case, twelve in number, that I have operated on since January, 1902, I have removed the appendix before closing the abdominal incision, and in all but two of these the appendix was a portion of the intussusception. My reason for making the incision in the right rectus is due to the fact that the majority of cases are those invading the cecum and colon, and such being the case, the most frequent site of final reduction is that of the right lower quadrant of the abdomen. Even if the case is one of the sigmoid or enteric variety, this incision can be enlarged sufficiently to approach the most remote parts of the abdomen in children, without subjecting the patient to any danger of a hernia.

In case of inability to reduce the intussusception or when gangrene of the gut exists, excision with end to end anastomosis in the enteric or colonic varieties, and end to side anastomosis in those cases requiring excision of portions of both large and small intestines is necessary. Although occupying a few moments more time, this should be done before a patient is taken from the operating table.

In one case of over five days duration, in a male four months old, I was compelled to excise for gangrene and irreducibility six inches of the ileum and all of the large intestines to within four inches of the rectum, making an anastomosis between the ileum and the lower portion of the sigmoid. Death followed in a few hours.

Before closing the abdomen care should be taken to examine thoroughly the abdominal contents for multiple intussusceptions; the term multiple is used in contradistinction to the terms double, triple, etc., given by Edred M. Corner, M.B.,[1] to those cases in which double, etc., invagination takes place in one intussusception.

After reduction, the abdominal incision is sutured in the usual manner and a very tightly applied abdominal dressing is used.

After-treatment.—The after-treatment is of great importance. Paregoric, in sufficient doses to control peristalsis, is to be administered every three hours; barley water and milk, proportions varying with the child's age, are employed, and a small amount of bismuth, etc., is used.

The first day or two the child may have all the evidences of a foul, putrid enteritis with a temperature of from one-half a degree to two degrees elevation, the latter being thoroughly consistent with primary union in the wound.

My work for the past fourteen months consists of six operations with two deaths. One of these patients was doing nicely for twenty-four hours when he suddenly died. Dr. Francis Huber, to whom I am indebted for the case, was of the opinion that death was due to status lymphaticus. The second case was that cited as Case 28, operative case No. 24, where I excised ten inches of the ileum, etc.

I can not but feel that the citation of the two cases, one of spontaneous reduction several hours after enema, and the one of a subacute variety of over six days' duration with recovery after operation, are of sufficient interest to repay us for the time occupied in recording them in detail.

STRANGULATED HERNIA.

In a recent paper[2] on strangulated hernia in which I reported 58 cases, two were in children under five years. Since reading the paper I have had another, occurring in a male six weeks old, son of a physician. Two occurred on the right side, while the third was on the left. All were inguinals and occurred in males.

The left-sided hernia occurred in an infant not quite 13 days old. The symptoms expressed were those of irritability, crying, restlessness and shock. The protrusion, readily discoverable, is usually found by the mother while giving the child its bath. No differential diagnostic difficulty is experienced in these unless the case be one of atypical Richter hernia as occurred in the patient of 5 years of age. In this case obstruction was evident for several days. A small nodule in the groin, said by the mother to have been there for a considerable time, never varying in size, was taken for an enlarged gland. An abdominal section was made, and the protrusion found to be a small portion of a knuckle of gut (Richter's hernia), strangulated and gangrenous, requiring a resection. The case of a male, aged six weeks, was reduced after manipulation, no operation being necessary.

Since recording the 58 cases of all varieties of strangulated hernia, I have had 7 more, including the child of six weeks, cited above. There were 5 inguinal and 2 femoral, making a total of 65 cases, giving us about .046 per cent. occurring in children under 5 years in strangulated hernia of all varieties. If the inguinal variety alone be considered, and this should be, as I do not know of any strangulations recorded in the literature of femorals, ventrals, etc., in children of this age. I then have 31 previously reported and 5 additional cases in this paper, making a total of 36 cases in my recent practice, of which 3 were in children.

We then find .083 per cent. of all inguinal strangulations occurred in children under 5 years. The treatment in these cases resolves itself into: 1, Reduction, if possible, and in recent cases when the child is under 2 years the use of a properly fitting truss, relying on the possibility of a spontaneous cure. The six-weeks-old child has never had a recurrence in the six months past since reducing the hernia. 2. Operation with radical cure in all irreducible cases and all cases over 2 years, as the chance of spontaneous recovery with truss is relatively infrequent after this period.

POSTOPERATIVE BANDS, ADHESIONS, ETC.

It has fallen to my lot to have 2 cases of obstruction due to the above causes—one in a boy 6 years old after an operation for appendicitis in a Brooklyn hospital, and the other in a boy 10 years old following a drain operation for appendicitis.

Symptoms.—The symptoms of obstruction are the usual ones—constipation, meteorism, singultus, increased pulse, bad facies, temperature, vomiting as time goes on becoming fecal.

These symptoms are readily assigned to their proper source by fact of the history containing evidence of a previous operation. Both of these cases occurred after a period of from five to seven months had elapsed since the time of the original operation. This period of time corresponds to that cited in quite a number of cases reported in the New York Surgical Society, May 11, 1904.

Treatment.—The treatment in the cases occurring early, i. e., in from two to four weeks after operation, consists of elevation of the hips and body, high injections, etc. Should these not accomplish the result desired, operative means must be undertaken.

In cases occurring late, i. e., after from four to six weeks, precious time is lost by any attempt at mechanical relief, and operative procedures should be promptly instituted.

Prophylaxis.—As a means of preventing adhesive obstruction, I deem it essential to have a movement from the bowel of the patient within from twenty-four to thirty-six hours after the operation and one or more daily after that, and careful watching for not less than three weeks.

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[1] Pathology and Classification of Intussusception, Annals of Surgery, 1903.

[2] Medical Record, March 12, 1904.

MECKEL'S DIVERTICULUM.

These abnormal conditions can produce obstruction in one of three ways, an instance of each one having been reported by me in past years.

First, the diverticulum may become inverted and act as a drag producing an intussusception. Case 2 in my list of intussusceptions.

Second, by strangulation by cords or band-like prolongations; two cases in young adults.

Third, by inflammation simulating appendicitis and producing obstruction either by means of parietal or visceral adhesion of the distal end, thereby forming a loop for strangulation; one case of a young adult reported by me; or by producing a general peritonitis with subsequent obstruction.

Symptoms.—The symptoms of obstruction by Meckel's diverticulum in types two and three are very similar to an appendicitis plus in a day or so a profound obstruction with or without a generalized peritonitis; while in appendicitis obstruction is not evident except in those cases accompanied by general peritonitis or in those exceptionally rare cases where the appendix overlies a portion of the intestine and acts as a band-producing or cord-producing obstruction.

I feel safe in saying that close observation of the literature of this subject will show that the great majority of cases have heretofore been operated on for appendicitis, and the actual condition was only found on exploration.

OBSTRUCTION FROM OTHER CAUSES.

I do not feel that the subject of obstruction in children has had proper attention without considering the obstruction peritonitis seen occasionally in pneumonia cases in which no visible lesion of the appendix or other abdominal viscus is evident. These cases simulate very closely those of intussusception or general peritonitis from appendicitis, and are usually differentiated by the fact that a pneumonia exists; that respirations are increased; that the appearance is of a livid or red-cheek character instead of pale and anxious, as in acute obstruction; temperature is higher than usual in obstruction; that no blood has been passed per rectum; that no mucus is present in the stool; that no mass is found in the right iliac region.

At the same time it must be remembered that a sufficient amount of fluid may be present in the peritoneal cavity to give a sense of fluctuation per rectum. The citation of the following case will impress itself on all: Recently I saw a case with one of our pediatricians for intussusception, in which I made a diagnosis of pneumonic peritonitis.

This patient was about 8 months old, had a lobar pneumonia, and with it a profoundly distended and rigid abdomen, complete obstruction, rapid and feeble pulse, and temperature of 102.5. At the time of the consultation I suggested exploration, although I felt that neither intussusception nor appendicitis was present. On returning in two hours with my assistants I found the child practically moribund, and refused to operate. Death followed in about two hours. Autopsy, abdominal only, revealed a general peritonitis; no other visceral involvement; appendix healthy.

The onset in these pneumonia peritonitis cases resembles an appendicitis, especially if the lower lobe be involved, pain is reflected down into the abdominal wall through the eighth, ninth, tenth and eleventh intercostal nerves, giving us rigidity over the spot seen at times in appendicitis cases.

It must be also admitted that a pneumonia and an appendicitis can occur at the same time. Recently I have seen such a case; fortunately the appendicitis complication became an enclosed abscess, and was successfully operated on after the right lower pneumonia had subsided.

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DISCUSSION.

Dr. A. Jacobi, New York City, asked Dr. Erdmann the age limits of the patients on whom he had operated; if he always removed the appendix, and, if so, why.

Dr. Isaac A. Abt, Chicago, believes that all these cases are not due to mechanical obstruction of the bowels; there are cases of paralytic obstruction which deserve consideration. We have all seen examples of complete intestinal obstruction in pneumonia and in the course of severe intestinal infections which proved on autopsy to be paralytic in nature. Two years ago a colleague asked Dr. Abt to see his child. She was suffering from an acute gastrointestinal infection. The child vomited and had loose stools for a time, later on this was followed by a condition of absolute obstruction. There was complete prostration; the face was ashen; the child refused all nourishment; the temperature was normal—at any rate, less than 100—the pulse and respirations were very rapid. The abdomen was enlarged and tympanitic. A surgeon was called in during the night and pronounced the case one of intussusception. He was mistaken, however, as the autopsy a few hours later showed. During the earlier stage of the child's illness the stools had contained no blood; simply large quantities of mucus. The child died, and at the autopsy every inch of the intestine was carefully gone over. It was much distended, but no obstruction was found. The liver was fatty, and on section resembled that found in fat necrosis. Dr. Abt has seen two cases recently that were absolutely similar to this one. The striking features were, first, the symptoms of intestinal infection; then the absolute obstruction of the bowels, the low temperature, the rapid pulse and respiration, the fatty degeneration of liver and other viscera, and death. He believes that these cases belong to a class which has not been sufficiently described in literature, and that they are the result of ptomain poisoning, depending on the ingestion of some kind of poisonous food. He does not believe that such cases of obstruction can be helped by surgical measures.

Dr. Louis Fischer, New York City, said that the results that he has seen in operations on children have not been so good as those reported by Dr. Erdmann, and he attributes this to the fact that children do not bear the shock of laparotomy well. He has seen a series of cases in which laparotomy was done, and all the patients died. The fatal result in these cases might be attributable to several causes, one of which was a slow operation and shock. He would like to know whether rapidity of operating is not an important factor, so as to lessen the shock. The following case came under his observation recently. A child, apparently well in the morning, was taken suddenly sick in the afternoon with symptoms of constipation and considerable abdominal distension. In the evening the abdomen was still more distended. He saw the child at 9 o'clock, 12 hours after the first symptoms appeared, pronounced the case one of intestinal obstruction and suggested an operation. The operation was delayed till the following day and resulted fatally. The child was moribund at the time of operation.

Dr. S. W. Kelley, Cleveland, gave it as his opinion that spontaneous reduction occasionally occurs and may take place under the use of opium. If there is any time at which opium is useful in intussusception, it is in the beginning, but it should not be depended on. There are cases in which the use of air or water as a means of reduction is useful, and sometimes it must be adopted as a matter of necessity, as a laparotomy is not always permitted by the parents. The introduction into the bowel of air or water, when properly done, is sometimes followed by reduction, and Dr. Kelley does not think the method should be altogether dispensed with. Very little is said in regard to the way in which it should be applied, the amount of pressure that should be used, nor the length of time the pressure should be maintained. Dr. Kelley thinks the figures that Morris gave some years ago placed the pressure at 8 or 9 pounds, which appears to be too high. He believes that air pressure is preferable to water pressure in very many cases, but it is so difficult to measure that he finds it succeeds best by using air first and then following it with water, which is more easily handled, and by means of which the air pressure can be measured. He prefers a pressure of four or five pounds, keeping it up for a period of 15, 20 or 25 minutes, and believes that this is more effective than a higher pressure for a shorter time.

Dr. Samuel McC. Hamill, Philadelphia, said that it has been shown that irritation of the rectum produces reversed peristalsis, and this fact may have had some bearing in producing spontaneous reduction in the case reported by Dr. Erdmann.

Dr. A. Jacobi, New York City, considers that the phenomenon mentioned by Dr. Hamill would not be of any practical value in the treatment of these cases, because the reverse peristaltic wave would undoubtedly be interrupted at the point of intussusception.

Dr. John Lovett Morse, Boston, reported that the experience at the Infants' Hospital in Boston is that babies not only bear laparotomy but other severe operations very well, providing they are kept warm during the operation. All the patients who are to undergo an operation are wrapped in cotton and placed on a special operating table, which is kept warm.

Dr. John F. Erdmann said that eight or ten years ago Dr. R. T. Morris produced reversed peristalsis by irritating the rectum by the use of chlorid of soda, to determine what portion of the intestine he was dealing with—whether the afferent or the efferent portion. Dr. Erdmann considers that it is not only time lost, but that it is very apt to prove useless, because the colon and the rectum will not hold the amount of pressure we wish to use. The sphincter will not hold the water in the bowel. With both air and water the danger of producing a rupture of the bowel is very great. If Dr. Kelley could see the difficulty Dr. Erdmann has experienced in reducing an intussusception with the fingers after the abdomen is opened he would never again resort to the introduction of air or water. The coats of the intestine are soggy and edematous, and unless great care is exercised in the reduction, a rupture of the serosa and musculosa will occur. While Dr. Erdmann does not favor the use of injections, he would not object to their use during the first six hours. Among his last six cases there were two deaths. In one, the cause of death was given as status lymphaticus; the other patient died after an extensive resection, with end-to-end anastomosis. There is no question that the more rapid the operation, the less the shock, and the latter is frequently the cause of death. The youngest child he has operated on was 14 or 15 weeks; that patient recovered. Children, as a rule, bear operation well. He has recently operated on 22 cases of appendicitis, all under 5 years of age, with a mortality of 9.9 per cent., and at least 14 of these cases were of the septic type. In the majority of his cases of intussusception, the operation was done within 15 or 20 minutes. If those cases that he operated on were not mechanical, then he does not know what constitutes a mechanical obstruction. An intussusception will occlude the caliber of the gut as completely as a wad of cotton, and even more thoroughly. The paralytic type of obstruction does occur, particularly in pneumonia in children, when there may be a general pneumococcus peritonitis, with paresis of the bowels, and death. The majority of his patients were under 1 year old: two of them were over 5, and the rest under 3. He removed the appendix because it could be done without complicating or lengthening the operation to any extent. He thinks it wise to do so because it prevents the formation of subsequent adhesions and a second abdominal section.

CHOICE OF A TIME OF ELECTION IN MASTOID OPERATIONS.

SOME CONSIDERATIONS ARISING FROM THE DIFFICULTIES OF THE CHOICE—PROSPECTIVE RESULTS.*

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Although voluminous articles, reports and discussions have appeared on the subject of mastoiditis, the mastoid operation and its ultimate results; indeed, experiences so exhaustively detailed that it would seem the searcher after truth might find his way without groping, yet perplexities that defy satisfactory decision so constantly confront the otologist, that I have chosen to place before you some such perplexities as have arisen for me in the recent past; and especially the choice of the proper moment for most advantageous operation.

This paper deals with well-to-do private patients, with whose intelligence it is undoubtedly more difficult to co-operate than in the case of the ordinary grade of dispensary subject. For, adding, in the former instance, to the difficulty and confusion which the conscientious worker experiences at times in his own mind, and at a moment, too, when most he needs to be unhampered in power to decide, there are presented to him by relatives and friends such questions and demands for positive answers that the picture of uncertainty is complete for him. While in the latter instance with the usual dispensary patient, one may follow a more independent and assured attitude, more easily ignoring inconvenient demands for enlightenment on the problems involved until one has arrived at some satisfactory solution of the best course to pursue.

So varied, too, are the final chapters in the histories of these cases, even after the otologist has had freedom in following his best intelligence, that they are at times quite inexplicable to him. Although reports of cases, like statistics, may be made to serve most contradictory ends, and are therefore not so useful as they might be, yet I wish to enforce and illustrate my theme by a few experiences which I will relate as briefly and relevantly as possible.

For the sake of logical discussion I have grouped these cases as follows:

Group 1. Features obtaining in mastoiditis as a complication or a sequel of the exanthemata.

Group 2. Features obtaining in mastoiditis as a complication or a sequel of influenza.

Group 3. Features obtaining in mastoiditis as occurring in the course of chronic suppurative otitis media.

As an object lesson looking toward the more intimate discussion of each of the above-mentioned groups it becomes necessary to study briefly the histories of cases apparently similar, yet with results widely divergent.

REPORTS OF CASES IN GROUP 1.

Case 1.—Female child, age 6 years. Scarlet fever of severe type of six weeks' duration. Subsidence of all symptoms except slight fever never ranging above 100.5 degrees. Without premonition, many days after apparent convalescence set in, pain began in the right ear.

Examination.—This revealed a highly congested, slightly bulging drum membrane, no sagging of the posterosuperior canal wall, mastoid sensitive to pressure.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Treatment.—Free incision of drum membrane was followed by sanious discharge, which continued for ten days, during which time the temperature remained unchanged—99.5 degrees in the morning, 100.5 degrees in the evening—but with subsidence of all pain and mastoid sensitiveness.

Result.—Gradually the discharge from the ear diminished, then ceased, the incision closing, while the temperature remained within the same range for more than two weeks longer, when it at last became normal. Since this time the child has been in fair health, with unimpaired hearing. Frequent examinations were made by her physician during this time, but they failed to reveal signs of any intercurrent affection other than a pronounced anemia.

Observations on Case 1.—The long-continued course of slight fever in this case, almost a month after incision of the drum membrane, aroused constant suspicion of the presence of purulent deposit in the mastoid. Consideration also, of Ponfick's findings of 91 per cent. of the case of autopsy after exanthematous diseases as showing unsuspecting mastoiditis, did not tend toward lessening my apprehension in the study of this case, and he was long in doubt of his wisdom in postponing operation. But though return to health was discouragingly slow, yet in the absence of more decided symptoms, patience prevailed and in the end recovery seems complete.

There still remains, however, this same doubt of the superiority of so conservative a course, and the query still arises were it not better to have opened the mastoid and perhaps removed some slight focus of purulent deposit and hastened this recovery; and when in the course of this case ought this to have been done? Recourse to the bacteriologic examination of the discharge should theoretically help to aid in answering both these questions, but the systemic condition following the exanthemata varies so greatly with regard to vulnerability to bacterial attack, that practically it is extremely doubtful if the bacteriologic findings furnish a safe index for guidance in these cases.

CASE 2.—Male, 5 years old. Scarlet fever of severe type of four weeks' duration.

History.—Desquamation had ceased for ten days, the child was apparently doing well but for a continued elevation of temperature—99 to 100.75 degrees. After this had continued for ten days pain in the right ear began.

Examination.—When examined two days later the drum membrane was reddened and slightly bulging, no sagging of posterosuperior canal wall, nor was there tenderness on pressure over any part of the mastoid.

Treatment and Result.—The drum membrane was freely incised, liberating a moderate quantity of blood and pus. Pain promptly ceased but no fall in temperature occurred. The usual antiseptic treatment was ordered. Discharge of an odorless pus continued for two weeks. Repeated and careful examination failed to reveal other than the aural disease. Notwithstanding an unchanged temperature range the child gained considerably in strength, sat up in bed, later on played around the room, still showing no other symptoms than the slight temperature and the aural discharge. Very gradually the suppuration lessened both in quantity and consistency until only a colorless, mucoid discharge remained. So much improved had the conditions become that only an occasional visit, perhaps twice a week for three weeks, was made, when, without warning or apparent cause, the ear symptoms became suddenly aggravated, moderate ear pain ensued, with slight mastoid tenderness; the discharge was, however, unchanged. A slight though frequent and annoying cough began. The following day all the symptoms were more pronounced, temperature 103.5 degrees. There was now very slight swelling over the mastoid. The morning of the third day the mastoid was swollen and edematous, auricle displaced and immediate preparation made for operation.

Operation.—Immediately on incision a very considerable quantity of foul-smelling discolored pus was evacuated. The sinus leading to the mastoid antrum was readily found, the entire mastoid process was carious, only a curette being used to remove the diseased structure. The carious process had extended to the wall of the lateral sinus, which, owing to its anomalous position almost under the antrum, was perforated by the curette. Profuse hemorrhage indicated its freedom from thrombosis. The ruptured sinus was closed by a Mikulicz dressing and the operation completed. Recovery, with perfect hearing, ensued after two months.

Observations on Case 2.—It is to be observed that Case 2 presents an exactly parallel history with Case 1, in every particular except the former, Case 2, lacked mastoid tenderness. It seems highly improbable that the extensive necrosis found should have occurred in the two or three days preceding operation. Yet the extremely dangerous condition supervened with such apparent rapidity that I can not but believe that the time for most advantageous operation must have passed at some time during the five weeks of stationary temperature. Without, however, any signs except slight discharge, a marked grade of anemia and a moderate temperature, an exploratory mastoidectomy seemed to have been unwarranted.

CASE 3.—Female, age 3. Scarlet fever.

History.—During the desquamative stage acute otitis occurred in the left ear. The drum membrane perforated in two days. When seen, copious discharge was issuing from ear. Treatment only slightly modified the character and quantity of the discharge, yet the patient gained in strength so that she was brought to the office for two weeks for further treatment. Then pain of paroxysmal character began around the ear, temperature 100.5, no change in discharge, no mastoid tenderness at any time. On the fourth day slight edema over mastoid.

Operation.—Operation on sixth day revealed mastoid full of pus, complete necrosis, only curettement being necessary to clear away debris and enter antrum.

Observations on Case 3.—This case is so perfect a counterpart of the other two cases of this group up to the date of aggravated symptoms just preceding operation that there is due its discussion the same pertinent inquiry, ought exploratory mastoid operation to have been done during the weeks in which general improvement seemed in progress, and without other guiding symptoms than slight aural discharge with occasional slight elevation of temperature?

Examples of this group of cases might be multiplied with a quite unvarying symptom-complex, until perhaps, three to six weeks had elapsed in each case; the outcome in some cases being smooth, unexpected recovery in the end; in others, unequivocal demand for undelayed operation following sharply on what seemed a slow but satisfactory course of convalescence.

Bacteriology may in the future furnish the coveted data pointing to the need of operation during these latent intervals, but reinfection by streptococci during an otitis media of several weeks' duration is not only possible, but probable, especially in scarlet fever cases, or indeed in any of the exanthemata. Further, no private patient with the mild symptoms detailed above would permit a disfiguring operation though the presence of streptococci prognosticated eventual surgical interference. With a hospital patient whose time is important and who can have little care at home, the aspect is a totally different one and the bacteriologic examination ought to have due weight in arriving at a decision.

REPORT OF CASES IN GROUP 2.

Case 1.—A thin, pallid woman aged 41 years.

History.—Had bronchopneumonia following grip, when she was attacked by acute otitis media of unusually severe nature.

Symptoms.—Pain violent and constant. Temperature 102.5 degrees. Drum membrane freely opened, releasing a quantity of sanious discharge. Pain was in nowise modified, radiating over entire side of head and neck, without ceasing. Considerable sensitiveness over mastoid and antrum, especially at tip, and over sternomastoid muscle, for several inches downward. At no time was there any edema or redness over mastoid. Copious discharge through external auditory canal and eustachian tube. Temperature remained 100.7 degrees a. m., to 101 degrees p. m.

Termination of Case.—Operation strongly advised, but positively declined because patient knew of one case of mastoid operation that at the end of one year was still unhealed. Indications were unmistakable for operation, but she persistently refused, and after about ten days recovery began and progressed slowly. There was much deafness and occasional severe pain about the ear and radiating about the head, especially the occiput, evidently indicating a resorptive process in antrum and mastoid cells.

Observations on Case 1.—As will be seen this case gave fairly urgent indications for operation. A recovery of rather an undesirable character seems to be in progress, for a possible operation still faces the patient. There is marked deafness which might have been escaped and the general health is very surely menaced by leaving nature to cope with the infection alone. It presents, however, an illustration of the difficulties of prognosis in cases of mastoid involvement.

Case 2.—Woman, married, aged 28. Grip of three days' duration; when first seen temperature 101 degrees. Right drum had perforated with copious discharge; left ear acutely inflamed, membrane bulging, great pain.

Treatment and Result.—Membrane promptly incised, followed by profuse discharge of pus. Hot bichlorid irrigations every two hours gave some relief; temperature next day 99 degrees. During that night pain in the left ear recurred persistently. On morning of third day mastoid tenderness and frontal headache. Leiter coil applied for forty-eight hours. Mastoid swelling and tenderness slightly modified, temperature 99 degrees, with violent headache and pain in and around the ear. Discharge from right ear continued profuse, while that from left ear much lessened. No improvement by treatment; patient sent to hospital on fifth day for operation. Here much pus was expectorated, the incision in left drum membrane almost closed and discharge ceased.

Operation.—A diploëtic mastoid antrum was found filled with granulations, surrounding bone softened. Complete subsidence of the severe pain followed the operation; patient left hospital on the fifth day and on the seventh was sitting up, quite well and strong. She is now, at the end of three weeks, completely recovered, with excellent hearing.

Observations on Case 2.—The parallelism of these two cases as well as the contrast between them is so evident that they need little comment. The local and general conditions in each before operation were quite similar, minus the bronchopneumonia in the second case, while the operation undoubtedly changed the picture entirely in Case 2, from a slow, painful, doubtful and unsatisfactory recovery to a prompt and desirable one.

Group 2, unlike the examples in Group 1, offered no difficulty in deciding on the necessity for operation, nor as to the time for this procedure. One prominent feature to be observed in the history of these cases, as well as in that of several others, occurring recently and here unrecorded, and which were by prompt measures aborted, is the very rapid sequence of symptoms which I have noted as characteristic of aural complications of epidemic influenza.

REPORT OF CASES IN GROUP 3.

Case 1.—Woman, aged 40 years. In poor health, anemic, hysterical, constant headache, which had been attributed to some uterine trouble for which a number of curettements had been done, without result.

History.—Had had suppuration in left ear for several years. Had tried many treatments but without avail. Discharge thick, tenacious; foul odor; carious bone. Pain over mastoid marked though inconstant. Temperature normal.

Treatment.—The case was treated tentatively for three weeks without improvement, and the Schwarze operation was done. Mastoid carious, much pus; the antrum and cells were carefully cleansed, the aditus enlarged, the attic curetted; thorough drainage obtained. Wound healed kindly, absolute cessation of suppuration, complete relief from headache and hysterical state, and health completely restored.

Observations on Case 1.—The severe and unremitting head pain and the hysteria which had been for years ascribed to uterine disease were completely relieved by the removal of the focus of disease within the mastoid. There has been no complaint of uterine disease since restoration to health took place.

Case 2.—Woman, aged 38 years, in fair physical condition.

History.—For several years prior to her first visit she had had pain over the right mastoid which was considered neuralgia, but without apparent middle ear involvement until an unusual exposure caused severe chilling and cold. Pain then became violent, drum quickly ruptured, profuse purulent discharge without cessation of mastoid pain.

Examination.—When seen at the office, temperature 99 degrees, muscles of neck of right side rigid, profuse discharge from a large perforation in drum membrane, mastoid exquisitely sensitive, hearing reduced to loud voice close to ear; immediate operation.

Operation.—Mastoid carious, antrum very small but filled with pus, aditus unusually large, no necrosis detected in middle ear. Entire mastoid process removed and free drainage through middle ear established.

Result.—On following day temperature 98.5 degrees, stiffness of neck muscles subsided, suppuration entirely ceased, and on third day patient was going about feeling well. Hearing has become almost normal, ear dry, health good.

Observations on Case 2.—From the extensive caries found after a few days of illness, it seems probable mastoiditis was present perhaps for a long time before the exposure which resulted in the exacerbation. However, could the aural surgeon have advised operation with positively no sign to guide him but occasional severe pain of neuralgic character in the mastoid?

Case 3.—Woman, aged 52 years. Anemic and rapidly losing health and strength.

History.—Has had middle ear suppuration from left ear since ten years of age. Recently the discharge has become very much worse. It would suddenly cease for a day or two, during which time there was intense pain in and around the ear, radiating to the forehead and accompanied with considerable vertigo. These attacks of pain and vertigo became more frequent.

Examination.—When she presented at the office there was a profuse discharge flowing from the ear, of foul odor and thin as water. The superoposterior canal wall was bulging and sensitive; pressure over mastoid painful to only slight degree. No redness nor edema over mastoid. There was no displacement of auricle. Temperature normal. Immediate operation was advised and accepted.

Operation.—The mastoid was very small antero-posteriorly, diploëtic and ivory hard, the antrum almost obliterated and very deeply placed; only a small quantity—a few drops—of pus was found in the antrum, but the surrounding bone was carious down to the inner table of the temporal bone, which was chiseled away until the dura exposed, which was found to be smooth and healthy. Fully two-thirds of the small mastoid was removed, and this opening was made continuous with the middle ear; thus a modified radical mastoid operation was done. The closure of the wound differed somewhat from that ordinarily employed. The posterior flap was dissected from the skull for about two inches, then drawn forward and stitched to the auricular flap, leaving an opening at its inferior end for drainage, a gauze wick was inserted and removed on the third day, and as the reparative process was satisfactory it was left out and the wound allowed to granulate, which, since there was perfect apposition, it did promptly. Drainage was then secured only through the external canal. This procedure has given me the most satisfactory result.

Result.—There remains absolutely no deformity. At the end of one month the bandage was discarded and the patient resumed her usual duties. The ear is not entirely dry, but the discharge is only serous, slight and odorless.

Observations on Case 8.—The length of time of continuous aural suppuration without ill effect until the sudden exacerbation a few weeks prior to the operation is rather unusual.

It is to be observed also, that there was total absence of fever, mastoid swelling or redness, the diagnosis being made from the sagging posterosuperior canal wall, the pain and the vertigo. It must appear evident, that to have awaited the appearance of the so-called classic symptoms, which should determine the time of election of operation, would have exposed the patient to dangerous complications.

CONCLUSIONS.

In conclusion, it will be a source of helpfulness and gratification not only to me, but undoubtedly to those of the profession who may be interested in the transactions of this Section, if this paper shall elicit a free discussion on its various aspects; and especially would it seem valuable to find a consensus of opinion of this body on the question whether exploratory operation on the mastoid in obscure cases is ever justifiable in the absence of positive indications. While inclined to conservatism regarding exploratory operation on a suspected mastoiditis, I feel that a sin of omission in these cases is a serious one.

Some authorities have striven for definiteness on this subject of an opportune time for operation. It is possible in a condition presenting so varied a symptom-complex as at times does mastoiditis, that an elected time for operation might not be said to be a practical offering to our present wisdom on this subject, but it seems that some nearer approach to a definite rule might be arrived at through discussions of this deliberative body. Others have grounded on this same rock of hesitation and uncertainty, and the transactions of this Section show other requests for discussions that should advance toward the formulation of definite rules on this subject.

As I have indicated, the opinion of the best workers this field, but by these conservatives such varied rules are given as permit a latitude, within which decision may be remarkably perturbing to the surgeon. As in all work the good judgment of the operator must needs play its part, and to no greater extent in other surgical work does accurate and careful observation and deduction make for success than in the varying phases of an acute, supposedly suppurative mastoiditis.

As I have indicated, the opinion of the best workers in this field abroad favors waiting a longer time than it seems safe here to do in many instances, and I am persuaded that the rapidly infected mastoid following the exanthems and influenza here do not obtain in like measure abroad. From a very general survey of this subject, conjoined with my most intelligent prospective and retrospective study of the cases occurring in my work in the past few months, I am led to the conclusion that it is perhaps not possible to fix on a closer definition of the chosen time for operation than may be deduced from the following rules:

1. Delay in operation of cases belonging to the first two groups herein treated, should not be permitted beyond from thirty-six to forty-eight hours, if profuse discharge from the middle ear by incision or rupture, with ice to the mastoid and general antiphlogistic measures do not markedly improve the condition. Even with normal or slightly elevated temperature, if there is edema over the mastoid and sagging of the posterosuperior wall of the external canal, operation should not be delayed, for with what seems to be an improved general state, in the majority of cases operation will eventually be needed.

2. Cases showing infection with streptococci, while at time for days the symptoms lie in abeyance, such cases should not be treated tentatively on appearance of pronounced symptoms of aggravated pain about the ear, fresh rise of temperature, lessened or suppressed discharge from middle ear, but should be operated on without delay in order to prevent the extensive caries which occurs in from two to three days in such infection.

3. In cases of slow, painful recovery, even if promising in the end to be complete, it would be wise to operate after a reasonable period of observation, in order to assist nature in her task.

4. Since this paper deals with private patients who are seen without undue delay, and who have usually had the benefit of good care of a palliative kind, it may be stated that as a rule applying to these cases of chronic otitis media, that the radical operation with its disfiguring results may quite often be replaced by the simple operation conjoined with careful curettage of the middle chamber.

5. Cases of chronic otitis media may be permitted more latitude, if there arise no signs pointing to intracranial involvement. However, if there be present constant otorrhea, neuralgic pains over the part, lowered general health, with nervous irritability, perhaps vertigo, operation should be undertaken after from two to six weeks, if treatment has failed to relieve the condition.

As a last word I wish to disclaim any hope to offer novel material to this interesting and widely discussed subject. I have told my experiences and propounded queries which have confronted me while undergoing these experiences; and have offered rules not exhaustively applicable to all imaginable cases, but serviceable to me in dealing with the groups herein treated; and withal seeking in discussion more light. The various important surgical procedures all have a few characteristic features on which to base unequivocal indications for operation. Independence to the individual operator would undoubtedly be gained through a concurrence of conviction on this theme by the members of the Laryngologic Section of the American Medical Association.

DISCUSSION.

Dr. B. A. Randall, Philadelphia, referred to the frontiersman's phrase: "If you see sign of Indian, be careful; no sign of Indian, more careful." That is true of disease of the middle ear. The symptoms may be obscure while destruction of a deep-seated character is going on, usually because dense cortical tissue is shutting in the process and its symptoms. If patients have been made to understand that they have but one chance and they take that chance and recover withou. operation, one can only tell them they have been extremely fortunate and that it is a consolation to give other patients in the future. Dr. Kuyk will probably hear from that mastoid yet. Frank confession of difficulties in these operations may encourage younger men in their work, showing them that every one must do his best earnestly and conscientiously to make the fewest possible mistakes.

Dr. J. F. Barnhill, Indianapolis, said that, in a considerable number of cases of mastoiditis, in which the mastoid operation should be performed, the condition is almost symptomless, there being present no pain, fever, redness nor swelling. We must take into account the fact that the discharging ear does not show a tendency to dry up, and that in most instances the amount of the flow is out of all proportion to that which could possibly come from suppuration in so small a cavity as the middle ear alone. Since external evidences of mastoid involvement are often wanting, and when present do not always indicate the gravity of the ailment, most thorough otoscopic inspection and examination by every known means becomes an essential. Sagging of the posterior superior meatal wall is, of course, a most valuable indication, but unfortunately is not always present. Politzer says that if there is a pulsating light reflex on the bead or pus which projects through the drum membrane after cleansing the external meatus, and persisting two weeks after its rupture, it is certain evidence of disease of the mastoid cells. Dr. Barnhill does not believe it is ever wise, unless we have more positive evidence than is usual, to say to the patient that the only chance for his recovery is through operation. Patients get well that we thought would die without operation; and if we tell them there are absolutely no chances of recovery, and they afterward fall into the hands of quacks who treat them until such unexpected recovery takes place, they do the profession harm, for they are examples of our failure to foretell the truth. It is wise to spread a greater knowledge of ear diseases. Other surgeons have been more energetic in teaching the public in this respect. When we have a case in hand, we should make explanations, perhaps exhibiting some cuttings. This method has acted as the greatest kind of persuasion to the patient, easily showing that what is commonly regarded as the ear is in reality only one small part of the hearing apparatus, and that when the disease once reaches the cells behind the ear, the drainage is very poor. If the patient sees the relation of the mastoid cells himself, he is much more ready to consent to surgery than he would otherwise be, because it must be clear to anyone who sees the arrangement of the middle ear, mastoid cells and other parts liable to become affected, that surgery is often the only rational means of relief and cure.

Dr. D. McAuliffe, New York, said that it takes one of great diagnostic ability to determine this question. There is something recognizable in the patient himself which guides a man, more than the local symptoms. The symptom complex generally put down is so rarely met with in the vast majority of cases that we have practically no guide to determine the time of operation. Tenderness from pain depends on the elasticity of the cortex of the mastoid. He finds that temperature is the best guide, and that generally a case will show some slight elevation of temperature after two weeks. Bulging of the posterior wall does not take place unless infection has occurred. If the forward march of the sepsis is not well marked, this bulging will be absent. In mild attacks of mastoiditis there are very few local symptoms, but when they recover without operation the hearing is impaired.

Dr. Otto T. Freer, Chicago, emphasized that bulging of the posterior wall of the external auditory meatus does not always indicate suppuration of the mastoid antrum or cells. These cavities may be intact while a deep subperiosteal abscess may be the cause of the prominence of the posterior wall. There may be enough bulging to entirely close the auditory canal and yet the pus may be situated externally under the periosteum and not in the mastoid cells.

Dr. H. E. Smyth, Bridgeport, Conn., said that the surgeon who is always radical, or the one who is always conservative, has little trouble in deciding when to operate, but the man who endeavors to be radical or conservative, according to the disease in the temporal bone as indicated by external signs, is constantly in a dilemma. The amount of disease is sometimes so at variance with the symptoms that there is marked damage within the bone with little evidence externally to call attention to the fact, and conversely, marked symptoms with little disease.

Dr. D. J. McDonald, New York City, reported a case and remarked that we are taught now to look out for this condition of hidden sepsis. In every epidemic of measles Dr. McDonald said he inspected the secretions. If we do our work in this thorough manner, we shall be the means of publishing the results of otology to the world.

Dr. D. A. Kuyk asked if exploratory mastoidectomy in private practice is ever justifiable unless one has a fair proportion of symptoms indicating mastoid trouble and can assert positively the existence of mastoiditis. At what moment in the cases reported would have been the most advantageous time for operation?

Dr. E. B. Dench, New York City, said that he makes no distinction between private practice and any other; if there is any doubt whether to go in or not, he goes in. He would rather see a doubtful mastoid from the inside than from the outside. He explains to the family that an exploratory operation is justifiable and that there is no danger in it. In all cases where he has made this explanation and told the family he might find nothing, he has never failed to find something to justify the operation and to make him sorry he did not operate twenty-four hours before. He spoke of a case twenty-four hours after acute inflammation of the middle ear developed, in which he did myringotomy, and two days afterward opened the mastoid for tenderness and pain. He found pus in the mastoid cells, had a culture made, and it proved to be pure streptococcus. Had it been allowed to continue it would have spread to the deeper structures. When in doubt, operate, with explanations to the patient and family.

TWO CASES OF OBJECTIVE AURAL TINNITUS DUE TO THE ACTION OF TUBO-PALATAL MUSCLES.*

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Subjective noises in the ear, loud, distressing, and of various description, buzzing, ringing, roaring, singing, steaming, whistling, is one of the most familiar symptoms encountered in the practice of otology.

These sounds are sometimes so loud and intense that the afflicted patient is led to think that bystanders can hear them as well as himself, and it not infrequently happens that the physician is asked if he also can not hear the noise which the patient hears so distinctly.

But cognizant of their purely subjective character, the physician usually only laughs at the query.

It is worth while, however, to bear in mind that exceptionally this inquiry on the part of the patient is entirely justified and that if we put our ear close to his, we will discover that the sound, which we thought was heard only subjectively by the patient, may actually be heard objectively by another person.

Two kinds of objectively produced noises are distinguished:

1. Those of vascular origin, generally of a blowing, roaring or buzzing character, synchronous with the

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

pulse, and influenced by pressure on the large neighboring blood vessels.

2. Those of muscular origin in which the sound is usually described as clicking, snapping, or ticking, and is likened sometimes to the sound produced by the friction of the edges of two opposing finger-nails, or that of the snapping of the fingers, or the ticking of a clock or telegraph instrument, and even in exceptional instances, to that of the firing of a pistol.

The latter have no connection with the pulse beat, but are isochronous with movements of the palatal muscles, or of the drumhead, or both, and in a number of cases with spasmodic contractions also in the muscles of the face and neck.

Johannes Muller,[1] writing in 1837, seems to have been the first to have recognized the muscular origin of certain objective aural sounds, to all of which he ascribes one method of origin, viz: Contraction of the tensor tympani muscle.

Schwartz, Lucae,[2] Schappringer, Burkner, Lindet, Wolff and Kayser have reported cases which were thought by these authors to have a similar causation In 1862, Politzer,[4] and about the same time Luschka, working independently, came each to the conclusion that some cases of this type were to be explained by the action of the tubopalatal muscles, especially the contraction of the tensor palati. A few years later, in 1867, a case was reported by Boeck,[5] in which this author was able to make a postrhinoscopic examination at the time of the production of the sound. The patient presented a spasmodic, up-and-down movement of the larynx, and elevation of the palate accompanying the click, and according to Boeck[5] there could be seen also with each click a drawing forward of the anterior from the posterior wall of the eustachian tube. He considered that this thoroughly demonstrated the Politzer theory of a contraction of the tensor palati. Leudet,[6] in 1869, reported a case in which the clicking sound was accompanied with a movement of the drumhead as well as of the palate; and there was also a simultaneous, spasmodic movement about the eyebrow and in the suprahyoid region

In 1873, Kupper[7] had a similar case, but without the movements in the drumhead, in which pressure on the tongue would cause the clicking to cease

These were cases of involuntary clicking in the ear In 1879, Dr. S M. Burnett[8] of Washington reported a case of voluntary clicking, and the only other case besides Boeck's,[5] so far as I have been able to discover, in which a description is given of the postrhinoscopic appearances at the time of the clicking.

Dr Burnett's[8] case was also examined postrhinoscopically by Dr. Franck Hyatt, and the result of their examination, in which they agreed, was quite different from the above-mentioned case of Boeck.[6] "During the contractions," writes Burnett, "the anterior wall of the pharyngeal orifice remains stationary, while the posterior is moved obliquely forward and upward across the mouth of the tube, the edge sometimes reaching the anterior border and completely closing it, but usually going only about two-thirds the distance across. The uvula is at the same time drawn upward."

It has been my good fortune to meet with two of the class of objectively perceived clicking in the ears within a short time of one another, representing, respectively, the involuntary and voluntary type, in each of which it was possible to make a very satisfactory examination of the mouth of the eustachian tube during the production of the sound.

CASE 1.—The first case, a young man aged 24, was referred to me Nov. 15, 1903, by Dr. S. M. Burnett, who called my attention to an article in which he had reported the case of a voluntary objective clicking already mentioned. He wished that I should make an investigation of this case, with the view to finding any nose or throat lesion which might be responsible for the disorder.

History—The patient, apart from his being nervous and anxious about the present affection almost to the point of neurasthenia, presented the appearance of being in good general health. For the past two years he had been subject to a loud clicking sound in both ears, which of late had become louder and more frequent, and very distressing. The clicking, which is likened to the snapping of the finger, occurs generally in quickly succeeding waves of from 10 to 20 at a time, and at the rate of about 60 a minute. The noises are more persistent when the patient is tired and exhausted, while during periods of quiet and restfulness he is nearly free of them. Swallowing or even deep breathing will, however, excite the clicking at any time.

The noise in the ears is always accompanied by an up-and-down movement of the larynx, which keeps exact time with the clicking, and sometimes the larynx movement will be in evidence unaccompanied by the aural sounds

The patient called attention to two other symptoms which he had noticed. One that when he opens his mouth wide he has a sense of grinding at the point of articulation of the lower jaw, and the other that the act of opening his mouth wide in yawning is accompanied by the ejection of saliva in little jets or spurts

Examination —On examination it was found that a distinct clicking or snapping sound could be heard at a distance of about twelve inches from the ear, which was isochronous with the up and down movements of the larynx. This sound could also be heard in front of the mouth.

The eardrums were a little retracted, but otherwise appeared normal and did not show any movement The watch could not be heard farther than half an inch on either side

On looking into the throat it was seen that the muscles of the pharynx and palate were involved in an almost continuous clonic spasm, which accompanied the up and down movement of the larynx and was isochronous with the clicking noise in the ears The spasm consisted chiefly in a jerky, somewhat violent muscular movement, causing an approach toward the middle of the posterior pillars of the palate, together with a more or less elevation of the palate—similar to the movement which is seen to take place in the act of vomiting

A view of the nasopharynx showed that the mouth of the eustachian tubes was also involved in these movements in the sense that at each spasm the posterior lower lip moved forward and upward in such a way as to greatly narrow the opening of the tube, and the angle which appears in the image as an approximate right angle, looking forward and formed by the upper and lower part of the eustachian eminence, becomes narrowed into an extremely acute angle, or is entirely obliterated by the elevation of its inferior border

The posterior extremities of the turbinates were somewhat enlarged, and there was inspissated mucus to be seen in the postnasal space and about the orifice of the tubes

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[1] Muller J Manual of Physiology translated from the German by William Baly, London, 1837, p 1262

[2] Lucae. Archiv f Ohrenheilk, Wurzburg, 1867, vol iii, p 201

[3] Kayser Verh der Deutsche Otolog Ges, 1895

[4] Politzer: Ueber die willkurlichen Bewegungen des Trommelfells Wien Medicinal Halle 1862, No 18

[5] Boeck O: Rhinoskopischen Befund bei einem Knackenden Gerausch im Ohr, Arch f Ohrenheilk, Wurzburg, 1867, vol ii p 203

[6] Leudet T E: Etude d'une variété de bruit objectif de l'oreille, cause par la contraction involontaire du muscle interne du marteau, et coincident avec un tic de quelque rameaux de la brache maxillaire inferieure du nerf de la cinquieme paire compt rend, Acad d Sc, Paris, 1869, vol lxviii p 128

[7] Kupper Ueber klonische Krampfe der Schlingmuskeln, Arch f Ohrenheilk, Leipsic, 1873, vol i, p 296

[8] Burnett, S M: Objective Aural Sounds Produced by Voluntary Contraction of the Tubal Muscles, Arch of Otol, N Y, 1879 vol viii, p 357

The pharynx presented the picture of the so-called lateral pharyngitis. The tonsils were moderately hypertrophied.

Treatment.—The treatment consisted at first in overcoming these hypertrophic conditions in the nose and throat, with a hope that reflexly they might beneficially influence the muscular contractions. The ears were also politzerized. This line of treatment was absolutely without any effect on the symptoms, although the hearing improved moderately.

Later, under catheterization and the employment of the eustachian bougie, swabbing of the postnasal space, and applications of astringent remedies directed to the eustachian orifice, the conditions appeared to improve slightly.

After the patient had been under observation about two months he left the city. I heard from him once, a few weeks after leaving, stating that the clicking in his ears was better.

Case 2.—A young lady consulted me in regard to a slight feeling of fullness in the right ear, and a voluntary clicking which she said had existed as far back as she could remember. The sounds could be produced by a movement of the throat similar to that made in the act of yawning. The clicking in this case was not so loud as in the former, but could be distinctly perceived objectively with the ear held four or five inches from the patient's.

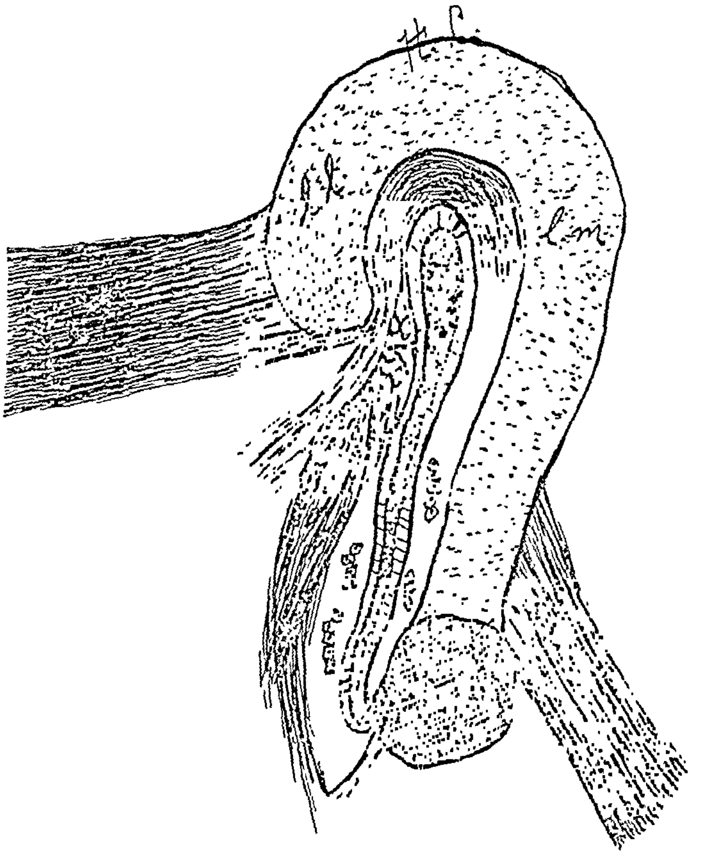

Fig. 1.—Cross section of the eustachian tube near its pharyngeal extremity. Represented as in its ordinary state with its walls in apposition, except at the upper part. H. C., hook cartilage; l. m., lamina medialis; t. p., spheno-salpingo-staphylinus muscle (tensor palati); s. p., salpingo-pharyngeus muscle (palato-pharyngeus); l. p., petro-salpingo-staphylinus muscle (levator palati) in cross section.

Examination.—The hearing was normal; the membranes were each slightly opaque, and the right a little retracted; otherwise normal. Nothing abnormal in the condition of the mucous membrane was to be discovered in the examination of the nasal fossa, the postnasal space or the fauces. The contractions which took place in the throat at the time of the production of the clicking were far less violent than those noted in the other case. The movements which were chiefly observed were slight, jerky contractions of the posterior pillars, to which was occasionally added an elevation of the palate, but the latter movement was not at all necessary to the production of the clicking sounds, which were observed to be precisely isochronous, with the contractions of the palatopharyngeus.

Examination of the postnasal space showed no drawing away of the anterior wall from the posterior; there occurred the upward and forwar [illegible]vement of the posterior lip seen in the other case, but this was not a constant accompaniment of the sounds, taking place only when the palate was elevated. The only other movement was a scarcely visible fibrillary twitching of the inferior angle of the orifice at the moment of the contraction of the pillars.

Treatment.—The eustachian bougie was introduced into the tube and a postrhinoscopic examination confirmed the fact of its being in place. This procedure seemed to have little or no influence on the production of the sounds.

Two or three weeks' treatment, consisting chiefly in the use of the catheter, the bougie, or the application of astringents to the mouth of the tube, were unsatisfactory in their results. Sometimes immediately after the treatment the sounds would not be so loud, but this improvement was not permanent.

In both of the cases here related, the conclusion is obvious, that the sounds produced in the ear were due to a contraction of certain muscles of the pharynx and palate connected with the eustachian tubes, in the one case, loud snapping noises heard in both ears and associated with involuntary choreiform movements of the muscles on the outside of the throat as well as inside; in the other, a clicking sound, voluntarily produced, confined to the right side, only audible to the examiner with the ear placed close to that of the patient's or by the use of the stethoscope.

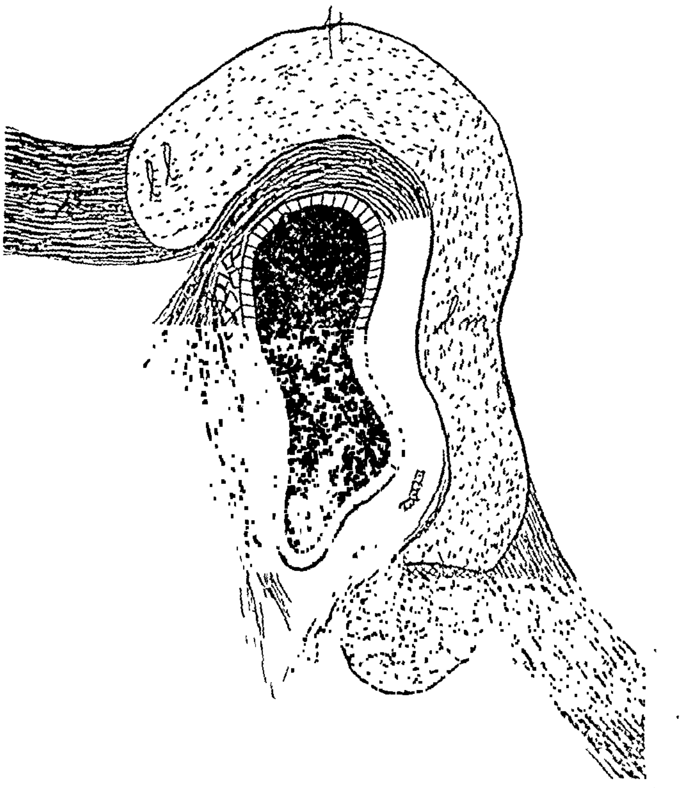

Fig. 2.—Same, showing supposed effect of tensor palati and palato-pharyngeus muscles in dilating the orifice of the tube.

There was in neither case any visible movement of the drum membranes, and the sounds kept perfect time with the contractions observed in the throat. The only question is as to the mechanism which gives rise to the sounds described.

There are three muscles connected with the pharyngeal extremity of the eustachian tube (Fig. 1): 1. The tensor-palati (spheno-salpingo-staphylinus), which is attached to the anterior or fibrous wall of the tube, and whose function it must be to open or dilate the tube by drawing the anterior wall forward (Fig. 2).

2. The levator palati, which lies along the lower part of the posterior or cartilaginous wall, and whose function is disputed, but is generally believed to be that of making the tube more patent by the shortening of its long diameter which results from a contraction of the body of the muscle (Fig. 3).

3. The salpingopharyngeus, a slip which passes from the palatopharyngeus to be inserted into the posterior wall of the tube at its lower extremity. This little muscle is generally overlooked, but is said by some physiologists to take part also in the opening of the tube.

The explanation which Politzer[5] and Luschka have offered contemporaneously, as already mentioned, to account for these snapping noises, is that it is due to the action of the tensor palati drawing the anterior from the posterior lip of the eustachian tube. This explanation has been generally accepted by other authors who have reported cases (Kaufman,[9] Brandeis,[10] Gerould,[11] Goldflam and Meyerson,[12] Schwartze), though the cause has been here and there attributed to contractions of the levator palati.[13]

That the noise is produced by sudden separation of the moist agglutinated walls of the eustachian tube would seem to be the only satisfactory hypothesis, and while the contraction of the tensor palati may be the chief muscle concerned in the action in some cases, the constant, isochronous contractions of the palatopharyngeus observed in my two cases, in one of which generally unattended with any palatal contraction, would seem to prove that the salpingopharyngeus should also be considered as sharing in the causation of the sounds.

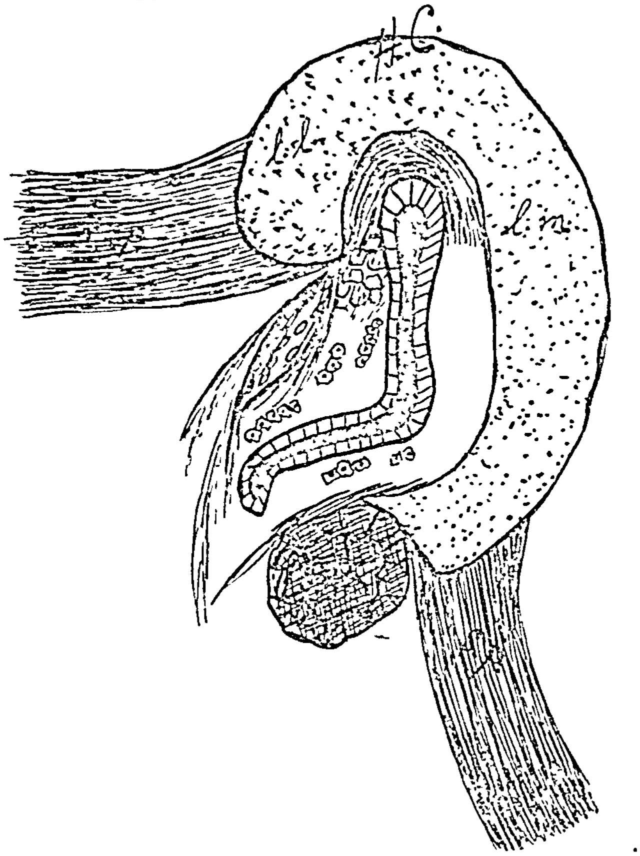

Fig. 3.—Same, illustrating possible effect of levator palati (l. p.), supposing it to have the function of closing the tube—the two other muscles conceded to be dilators.

The impression which we gathered from the study of the nasopharynx at the time of the contraction was that the action of the levator palati was rather to close than to open the mouth, as evidenced by the upward and forward movement of the lower posterior lip to the anterior lip, precisely as in the case described by Dr. Burnett.

Instead of all three of the muscles being engaged to open the tube, is it not reasonable to suppose that one of them should have the function of closing it?

If this be so, we may then consider both the tensor palati and the salpingopharyngeus as acting in antagonism to the levator palati, both tending to open the tube, the former by drawing the anterior wall forward, and the latter by pulling the lower part of the inferior wall backward and downward.

The action of either one or both might be concerned in the production of the clicking tinnitus.

The number of cases of clicking tinnitus which has been reported—exclusive of those due to contraction of the tensor tympani—is not large. Cases of the voluntary type have been reported by Lucae,[2] Politzer,[14] Delstance,[15] S. M. Burnett,[8] Orne-Green, Bremen.[16] Cases of involuntary clicking by Kupper,[7] Leudet,[6] C. H. Burnett,[17] Urbantschitch,[18] Mermod,[19] Szenes,[13] Brandeis,[10] while Baker,[20] Shield,[21] Schwager[22] and Kaufman[9] have reported cases of involuntary clicking that were, however, at the same time in a great measure under the control of the patient's will.

ETIOLOGY.

So far as I have been able to make out by review of the literature, neither age, sex nor race have any particular influence in the etiology of the affection.

Many of the cases were spoken of as having a very decided, nervous disposition, and in two or three instances (it may have been merely a coincidence) a history was obtained of a fall or blow on the head. A case reported by Shield[21] had been in earlier life a stammerer.

Urbantschitch's[18] case had formerly been a subject of general chorea, and he looked on the contraction of the throat muscles as a sort of choreic manifestation.

In several cases the patient presented spasmodic movement of other muscles than those of the palate or pharynx. In Kupper's[7] case, there took place an elevation of the root of the tongue and a contraction of the muscles about the mouth; in Leudet's[7] case, there was a spasm of the eyebrow and of the mylohyoid and digastric muscles; in Boek's[5] case, an up-and-down movement of the larynx, as was observed in the case reported here.

TREATMENT.

So far as treatment is concerned, no deduction of any value can be drawn from the literature of the subject.

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[9] Kaufman: Ein Fall von objectiv wahrnehmbarem Ohrgeräusch, Monatsch. f. Ohrenh., Berlin, 1894, vol. xviii, p. 191.

[10] Brandeis, R. C.: A Case of Binaural Objective Sounds with Synchronous Movements of the Membrani Tympani and the Palatal Muscles, Arch. Otol., N. Y., 1883, vol. xii, p. 14.

[11] Gerould, J. B.: Objective Tinnitus Aurium. Boston Med. and Surg. Jour., 1888, vol. cxviii, p. 123.

[12] Goldflam and Meyerson: Wien. Med. Presse, 1895, vol. xxxvi, pp. 641, 691, 728.

[13] Szenes: Monatsch. f. Ohrenheilk., 1893, No. 10.

[14] Politzer: Ueber willkürlichen contractionen des Musculus tensor tympani, Arch. f. Ohrenheilk., 1869, vol. iv, p. 19; 1868, No. 4, p. 19.

[15] Delstanche: Etude sur le bourdonnement de l'oreille, Paris, 1872, p. 47.

[16] Bremer: Ein Fall von objectiv wahrnehmbaren Ohrgeräuschen, Monatsch. f. Ohrenheilk., Berlin, 1879, vol. x, p. 139.

[17] Burnett, C. H.: An Objective Noise in the Ear Accompanied by Spasmodic Retraction of the Membrana Tympani and of the Velum Palati, Phil. Med. Times, 1874-5, vol. v, p. 306.

[18] Urbantschitsch: Handbuch der Ohrenheilkunde, Herausg. v. Schwartze, p. 413.

[19] Mermod: Des bourdonnements d'oreille perceptible á distance. Rev. Internat. de Rhinol., Otol, et Laryngol., Paris, 1894, vol. iv, p. 61.

[20] Baker, A. R.: A Case of Objective Noise in Both Ears. Arch. of Otol., 1884, vol. xiii, p. 293.

[21] Shield, A. M.: Pulsating or Clicking Tinnitus, Clin. Jour., London, 1896-7, vol. viii, p. 393.

[22] Schwager: Ein Fall von objectiv wahrnehmbarem Ohrgeräusch, Monatschr. f. Ohrenheilk., Berlin, 1896, vol. xxx, p. 58.

The administration of nervines and tonic remedies, change of air, sea voyage, the discontinuance of any confining or strenuous occupation, the treatment of any possibly existing nose or throat lesions, and a few other such usual commonplaces predicated on general principles have been advised by those who have written on the subject, and if the indication exists, one will, of course, not neglect such remedies; but, after all, it has to be admitted with regard to the objective form of tinnitus, as with the subjective, its prognosis is bad, and its treatment unsatisfactory.

DISCUSSION.

DR. W. S. BRYANT, New York City, said that all cases of tinnitus with the muscular basis have an important neurotic element which is responsible for keeping up the symptoms. A certain per cent. of these cases have impaired action of the pharyngeal muscles resulting in some unusual symptom which the patients brood over. As long as their minds are fixed on this, it is almost impossible to get a cure unless their hypochondriachal attitude can be changed. Local treatment does no good unless the mental attitude is changed at the same time. Very good results are obtained from the use of electricity in the neighboring regions, which probably helped the muscles and nervous mechanism. At any rate it pleases the patients and gives them confidence in the physician.

DR. C. R. HOLMES, Cincinnati, said that he had had but one typical case several years ago, where there was a clicking audible at a distance of several feet. He examined the case carefully with the mirror and each click was associated with a rhythmic contraction of the drum. The patient was under observation for a week or ten days for some other trouble and he called in a number of his colleagues to see it. The clicking was intermittent and would come on after nervous excitement or after eating a heavy meal, lasting from a few minutes to an hour or two.

OSMOLOGY AND PHARMACODYNAMICS.*

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Osmology is usually defined as the science treating of the osmotic states of the body fluids. However, as the osmotic processes in a liquid in a great measure reflect also its other physical conditions, this fact should be embraced in an adequate definition. Osmology, hence, may be spoken of as the knowledge concerning the physical conditions of and in the body fluids. This broader conception is adhered to throughout this paper.

The health of an organism depends on the existence and maintenance of its osmotic equilibrium. By osmotic equilibrium I understand that inter-relation of the physical conditions of the various body fluids—molecular concentration, osmotic concentration,[1] tension and dissociation—which is essential for the normal performance of the vital processes. This inter-relation does not consist in the equality, but in the physiologic dissimilarity of the osmotic conditions in the different fluids. In certain pathologic states, the fluids in the organism tend to equimolecular or equiosmotic concentration; the normal processes of life, however, are possible only so long as this uniformity is not established.[2]

It is the special office of the organs of secretion and excretion to maintain the osmotic equilibrium. A structural alteration of one or more of these organs, causing functional impairment, is liable to result in serious disturbance of the osmotic equilibrium. The functional impairment of such an organ is demonstrable by the altered osmotic tension of its secretion or excretion, which again may be an indication of the modified osmotic conditions in the blood. Normally, the secreting organs withdraw from the blood a certain amount of water in which are dissolved specifically proportionate quantities of inorganic and organic salts. The diseased emunctory is unable to cope with the secretion work, the absolute amount of water and salts withdrawn by it from blood and tissues falls short of that which it eliminates when functionating properly. Furthermore, the amount of water and solids secreted or excreted by a diseased organ may be in disproportion, that is, while the absolute amounts of both are diminished, the relative water or salt output may be still further reduced. The disturbance of the osmotic equilibrium between the body fluids and between the blood and the secretion or excretion progresses or regresses as a rule at the same rate as the structural changes in the parenchymatous tissues increase or subside.[3]

While the intrasystemic osmotic disturbances may be but rarely determinable by our present clinical means, the disturbed osmotic equilibrium between blood and secretion is soon demonstrated by simple physical methods. The degree of osmotic disequilibrium between blood and secretion is both an indicator of the intensity and the course of the pathologic process in the parenchymatous structures as well as of the influence of the therapeutic measure exerted on it. If there is a tendency to restoration of the osmotic balance, that is, if the insufficiency of the organ is gradually giving way to physiologic activity, the plan of treatment should be further pursued. If, on the other hand, improvement does not ensue after a protracted period, or if equilibration becomes still more distant, the therapeutic measures, as maintained by Zikel[4] should be at once replaced by more rational ones.

Pharmacologic action is not of an exclusive chemical nature. This fact, although not pronounced in so many words, was already recognized by Schmiedeberg[5] when he says that the molecular processes, as distinguished from those occurring between the atoms, should be taken into consideration when defining "chemical action." Further proof of his conception of "physical action" is furnished by his explanation of the non-toxic action of distilled water after its ingestion.

It is not often possible to distinguish between chemical and physical action; where the one ceases and the other begins is indistinguishable in almost every instance. We may assume even that the action of a great number of substances on the living cells is both of a chemical and physical nature. Purely chemical or purely physical action is exhibited by comparatively few remedial agents. In so far, however, as one or the other mode of action predominates, we may differentiate between substances acting chemically and such that will display physical activity.

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] While "molecular concentration" indicates the number of moles (gram-molecules) contained in a liter of fluid irrespective of an eventual dissociation, "osmotic concentration" as suggested by Hamburger (*Osmostischer Druck und Ionenlehre*, 1902) is the expression of that concentration indicating the total amount of molecules + ions contained in a liter of the physiologic or pathologic fluid.

[2] Complete uniformity of all partial osmotic tensions supervenes at no time and nowhere in the organism. Such uniformity would result in the cessation of the tissue currents, but there is absolute proof that such cessation can never occur; in the dead human organism even these constant currents may be yet demonstrated. (Zikel.)

[3] *In certain phases of degenerative processes* the insufficiency of an organ may yet for some time be averted by its unaffected cells; in case even that an organ has entirely ceased to functionate, another organ or set of organs may display vicarious activity, so that for the time being osmotic disturbances either do not ensue at all or are kept at a minimum.

[4] Zikel: Klinische Osmologie, 1902.

[5] Schmiedeberg: Grundriss der Arzneimittellehre, 1883.

Again, pharmacologic action is determined by the constitution of the cells or cell-complex reacted on. Thus, a substance may not cause any reaction in the protoplasmic molecule—it may neither stimulate nor depress; or it may influence cellular function by calling forth chemical alterations of the cellular material, the specific composition of which invited chemical reaction; or it may modify tissue function by changing the molecular constitution of the intracellular or extracellular fluids. Whatever the mode of the action of a substance on living protoplasm may be its influence is one of a modifier only, that is, it may excite and increase or reduce and suppress functional activity, but it does not occasion any new function.

Ever since the advent of solidar pathology and the doctrines originating therefrom, the chemical nature of pharmacologic action was the one principally studied. Although the laws of endosmosis and exosmosis were known then, but few pharmacologists devoted sufficient attention to the physical side of pharmacologic action. And yet, the physical action of drugs, the salt action in the more limited sense, is so much simpler, is so much easier of comprehension than the complicated, only to the most rudimentary degree understood chemical drug action. I can not offer an explanation for this historical phenomenon, but it occurs to me that much could have been accomplished in the physical domain of pharmacology even before the rise of Van't Hoff, Arrhenius and Korányi.

By physical pharmacologic action I understand that influence which is exerted on the living cell by directly modifying the molecular constitution of the intracellular or extracellular fluids without synchronous alteration of the chemical structure of the protoplasm.

In the same sense in which osmology is the science treating of the physical conditions of and in the body fluids, osmotherapy is that mode of treatment, the ultimate aim of which is re-establishment of the normal physical conditions, the osmotic equilibrium. In its last instance, osmotherapy regulates the electrical conditions in the body fluids. Osmotherapy produces physical stimulation or depression by withdrawing, supplying or dissociating molecules; physical stimulation, again, is a mediate result of increased physical depression, that of diminished electrical conductivity of the intercellular or intracellular fluids.[6]

The remedial agents whose foremost action is the physical one, I designate as "equilibrants." They may be divided into four great classes:

1. Agents exerting specific localized activity; agents influencing the secretory and excretory functions of the diseased organ by transitory or permanent restoration of normal semi-permeability.

2. Agents regulating the perverted osmotic conditions of a certain body fluid, or maintaining a general osmotic equilibrium for the time being.

3. Agents whose principal action depends on their ions; agents which influence the electrical conditions in the system.

4. Agents with combined action; agents exhibiting any two or all three actions enumerated.

These equilibrants are all recognized therapeutic agents; each group has had its representatives in the armamentarium of the practitioner who, guided by a higher or lower degree of empiricism, only vaguely understanding their pharmacologic action, has virtually always employed them.

Under equilibrants with specific localized action I comprise those agents which in the face of impaired permeability of an organ, without being absorbed or, if so, without producing important systemic effects, cause it to functionate more or less normally. Stimulating the secretory or excretory activity without entering into or changing the chemical constitution of the irritated cells and not withdrawing by its own mediate action the components of the secretion or excretion from the blood, the paramount effect of these agents seems to be exerted on the impaired semi-permeability. The outpouring of the secretions following the administration of these substances is considered to be due to stimulation of the sympathetic, or to some other, mostly nervous cause. This may be true; still, the drug action has to be looked on as a purely physical one, as all elements of the secreting cells touched by the drug are more or less affected at the same time; as in certain cases the application of drugs tends to permanent improvement of the secreting power, and as artificial irritation is in vain unless all conditions essential to the secretory process are fulfilled. Moreover, if a secreting organ is in an atrophying state, its nerves also share in the degenerating process.

Among the equilibrants belonging to this group are the stomachics of condimental nature. This administration of a preparation of *Zingiber officinale*, for instance, in a case of chronic gastric blennosis of the second or of the beginning third degree frequently causes correction or augmentation of the gastric juice; it tends to equilibrize the osmotic conditions between the blood and the gastric secretion which is proved by the augmented production of hydrochloric acid, or by the latter's occasional production *de novo*. The formation of hydrochloric acid depends on the improved permeability of the glandular membrane.[7] Medicaments of similar local action, irrespective of synchronous ganglionic irritation, I count among remedial agents whose paramount pharmacologic action is a physical one.

Agents regulating the altered osmotic conditions in a body fluid are the equilibrants *par excellence*. Such agents are water and salts. They mainly differ from the equilibrants with specific localized action in the fact that they themselves furnish the material by which the osmotic conditions are directly influenced.

The employment of the equilibrants of this group should be based on a minute study of the osmologic disease factors. It is not the introduction *per se* of the equilibrant by which the osmotic conditions are corrected. This is accomplished by the quantity of the equilibrant conforming exactly to the functional change. If, for instance, the pathologic, cryoscopically ascertained, osmotic pressure of a body fluid be subnormal to a certain degree, and if the deficiency is to be corrected by sodium chlorid, exactly the amounts of sodium chlorid necessary for the correction of the osmotic pressure are to be injected. Too little of the sodium chlorid may not effect any material alteration of the condition, too much of this salt may be followed by untoward phenomena.

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[6] I do not consider the non-dissociated molecules of the same importance as the ions, between which the reactions occur with greater ease and rapidity than between the former. The majority of the physical pharmacologic reactions very likely occur between the ions.

[7] Gastric hydrochloric acid does not originate in the glandular cell, but in the glandular membrane. This, a semi-permeable membrane, is impervious to free chlorin ions, but permeable to the hydrogen ions, coming from the blood. A certain secretory irritation is essential for the production of hydrochloric acid. This irritation is called forth by the presence of free chlorin ions on the inner side of the gastric membrane. Stomachics, like those aforementioned, create conditions facilitating the passage of chlorin ions to the inner side of the gastric membrane.

The performance of cryoscopy is indispensable, when equilibrants of this category are to be employed. By its aid we are enabled to determine the osmotic alteration of the body fluid, the osmotherapeutic correction for its restoration, and the specific equilibrizing value of every osmotherapeutic agent.

The specific equilibrizing value of an equilibrant consists in the faculty of modifying a pathologic condition or a symptom by means of its purely physical properties, as molecular weight, dissociation and concentration.

In case two or more equilibrants are used in combination or alternately the osmotic partial pressure of each has to be taken into consideration.[8] According to Zikel[2] the concentrations of two specific injection-osmo remedies must be like the products from their molecular weights and the mutual dissociating coefficients.

Besides, the influence exerted by these equilibrants on the osmotic conditions *per se,* their dissociated parts, the ions, which are the conductors of electricity, may alter the electrical conditions in the organism. While there is no doubt that the mediate and individual action of the ions is of a chemical nature, their ability to conduct electricity is a purely physical property. The ions are conductors of ectogenous as well as of endogenous currents of electricity. Their ability to conduct the intrasystemically generated electricity stamps them as one of the most potent factors in the vital processes. It is evident that, if ionization is deficient, or if the electrolytes are interfered with by non-conductors,[9] the electrical conductivity of the body fluids, as I have shown elsewhere, will be diminished or entirely suspended. Among the equilibrants, hypotonic salt-solutions (or water) are often the most important, as first pointed out by me.[10]

Among the equilibrants with combined action, distilled water,. under certain conditions, stands at the first place. In cases of hypochlorhydria, on the basis of chronic gastric catarrh, occurring together with renal insufficiency, for instance, distilled water acts primarily as an irritant, casting off the degenerated epithelium and establishing a more normal state of partly permeability of the gastric membrane. Subsequently, when lodged in the intestines, it exhibits its other equilibrizing qualities by withdrawing salts from the organism, by diminishing molecular concentration of the serum and by permitting or effecting increased ionization.

Osmotherapy is as yet in its very infancy. Of its rationale—if the premises, the theories of osmosis and dissociation be well founded—there is not the shadow of a doubt. But how well are these conceptions founded? Do we not conceive of Nature and her forces a little differently every few years? Will these conceptions endure sufficiently long to impress their mark on all the branches of medicine, as the bacteria have done?

I have briefly sketched the relation of osmology to pharmacodynamics in the light in which I see it. The picture, I know, is incomplete, and, perhaps, too tersely drawn in some respects. Succinctness, however, was compulsory on this occasion.

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[8] Osmotic partial pressure is the osmotic pressure of an individual dissolved substance in a solution of mixed substances. The osmotic pressure of a dissolved substance mixture is equal to the sum of the partial pressures of the individual substances.

[9] Stern: A Contribution to the Pathogenesis of the Uremic State: the Probability of Its Physico-Electric Substratum, Med. Rec., Jan. 24, 1903.

[10] Some Points Pertaining to the Therapeutic Management of the Uremic State, Amer. Med., May 2, 1903; Trans. of the Med. Soc. of the State of New York, 1903.

SOME PROBLEMS OF PRESBYOPIA.*

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When I began practice I did as I had been taught regarding the correction of presbyopia. Text-books, teachers, and general custom agreed that presbyopia began sometime after forty, and that no mydriatic was needed in such patients. There was a rough rule wandering about that plus spherical lenses of one diopter were needed in forty-five-year-old patients, twos at fifty, threes at sixty. This was about the time of the "Punch, Brother, Punch with care, a blue slip ticket for a five-cent fare, etc." Actual dealing with presbyopic patients soon brought me up sharp. Rules like those of the street car conductors would not work out in the oculist's office. If any rules at all were admissible they had to be of a different kind from those of the text-books; in some ways far more definite, in others more indefinite. Some of these cautions I have brought to clearness are as follows:

1. In oncoming and progressive presbyopia, cycloplegia is generally necessary to obtain the static refraction on which the presbyopic correction is based.

Precisely in eyes whose accommodation powers is being narrowed and lessened is the mydriatic most needed in order that eyestrain may not be increased by the close limits in which function is being compressed. When there is youth and a high range of accommodation the refractive error may not produce the injury taking place in the presbyopic. This is a truth so self-evident that it is astonishing to find it utterly ignored in Europe and too commonly ignored in our country.

The slightest misplacing of the axis of astigmatism, the failure to get the accurate amount of the error of refraction, the least imprecision in correcting the slight anisometropia, insure more trouble in the presbyopically lamed eyes than in others with plasticity and with activity of neutralizing or compensating powers. If there are symptoms of eyestrain, and especially if accompanied with any doubts in my mind as to accuracy, I do not hesitate to use a mydriatic up to the ages of fifty-five or sixty. I think almost all patients up to fifty should have it. I mean homatropin and cocain, and instilled in the office.

Discrimination as to those with latent or manifest glaucomic tendencies is, of course, demanded. The individual expertness of the oculist must also be considered. The art of refraction requires a skill, a judgment and a delicacy of perception, as great and rare as in any other calling, greater, I believe, than in surgical or inflammatory conditions. A highly exceptional mastery of the art may succeed in estimating the error of refraction without a mydriatic when others would fail. None may safely lay claim to such ability. None, at least, may safely trust himself in its habitual employment. Easy going assumption of it is another phasing of the characteristics which have duped us since proverbs and folk-tales and the ophthalmometter were invented.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

2. The age at which presbyopic correction should first be given depends on the pre-existing refractive error.

The old rules as to forty-five, etc., are nonsense. If the patient has two diopters of hyperopia, the presbyopic correction will be needed much earlier than if he is emmetropic. If he has myopia, the necessity will arise later, as is well understood. But astigmatism creates a greater indefiniteness, and especially if it is unequal, or if unsymmetric. Anisometropia further complicates all rules and makes them still more indefinite. The onset of troublesome presbyopia also depends on whether the ametropia has been corrected or not for years previous.

3. The correction of the presbyopic error of one or both eyes is often dependent on the existence in one eye of amblyopia from disuse.

This exclusion of one eye from function always brings most difficult problems. If of high degree and of long standing it may not be possible to get reaction or to stimulate the lost power into function. As a rule I believe in saving partially ruined eyes, and it is possible to do so more often than has been supposed. Such eyes exist far more frequently than text books and teachers tell us about. In some rare cases at the presbyopic age the attempt to save the eye and bring it into function is not only possible, but will produce most decided rebellion on the part of eye and brain. These "hurt eyes," with stippled maculas which let you stare at them, and which so plainly show neglect and sin, both lay and medical, are daily visitors to the oculist's office, and they make his hair gray sooner than should be.

4. Less accommodation in one eye than in the other may condition the amount of the presbyopic correction.

This inequality of function may be the result of anisometropia, of right-eyedness or left-eyedness, of a peculiarity of occupation, of monocular disease or injury, of heterophoria, etc. It is of more frequency than is suspected, and causes much ill-success in the correction of presbyopia.

5. The onset of presbyopia demanding correction may be delayed beyond the usual age by hypertrophied accommodation.

This abnormalism of excessive accommodation is the result of lack of presbyopic lenses, with the resultant over-function of the ciliary muscle and abnormally retained elasticity of the lens. Excessive use of any organ, or abnormally prolonged use, produces disease. That of the accommodation in presbyopia causes eyestrain and all of its reflexes. The eye itself or the organs which bear the brunt of the derouted reflexes must suffer. I have heard of one oculist who attempted for many years to postpone presbyopia requiring correction into old age. That is a human vivisection experiment that would be somewhat interesting to science, but which I should be far from wishing to try in my own case. We see daily the injury and the suffering it causes in old people who indulge in the puerile vanity of ability to "read without glasses." The result is that they do not read much, their little intellect goes to seed, and the little reading they do produces disease.

6. The correction of presbyopia at an early or late age, and the high or low degree of the error depends on the amount of near work demanded of the eyes.

In nonreading farmers, workmen, seamen, etc., the correction is not required to be made at so early an age, nor perhaps in so high a degree as in sewingwomen, literary people, engravers, etc. A hurried test may also result in a too low correction, because the accommodation by a moment's intense effort may prefer a lower lens than would be required in more prolonged use of the eyes at near range.

7. Presbyopes who deceive the oculist as to their age may suffer if he has not been alert minded to detect the error.

One must be on his guard in treating "women of doubtful age."

8. The peculiarity of the habitual occupation may necessitate a higher and earlier correction than is usual.

Embroidering, "sewing on black," engraving, watchmaking, measuring in sixty-fourths of an inch, etc., are kinds of employment that make inordinate demands on the accommodation.

9. The light, its quality, power, etc., must also be inquired into.

If a patient works all day by artificial light, or by poor daylight, in darkened rooms, if the angle at which even a good light strikes the work is not right, eyestrain is sure to result. If after a long day of strain, under these hurtful conditions, reading, sewing, etc., are continued at home, and again perhaps, with bad lights, the results must be deplorable.

10. The position of the body and head in sewing, reading, or other near work, may be harmful to the eyes and the general health.

If the book, sewing material, writing, etc., is placed in the lap, or in such a position that the head is bent over, the spine curved, and the chest flattened, the injury to the patient's eyes is almost certain because of nonillumination of the page, paper, etc., and also because of the improper position of the eyes and head. The health generally must be harmed by the compressed condition of the pelvic organs and the lungs, poor respiration, etc.

Bookkeepers, etc., should stand at their work as much as they may, and chairs at desks should be low, the desk high, the writing leaf inclined, the axis of vision as nearly as may be perpendicular to the plane of work and of the spectacle lenses. The single disadvantage of the bifocal lenses is that they compel the axis of vision to be inclined downward. For this reason they should be set high before the eyes, and the habit advised of "chin-up." Book rests, book holders, etc., should be encouraged. In my boyhood "sewing-birds" screwed to tables were common. They were most excellent devices.

11. The state of the general health, the preserved vitality, the vigor of will and of body, will also condition the early or high correction.

A flaccid muscular tone, anemia, denutrition, care and worry, a melancholic or pessimistic disposition or philosophy of life, may not be entirely overlooked. Patients so handicapped require a fuller or earlier presbyopic correction than those who are more vigorous. Their innervational power is lessened and sometimes nothing the oculist can do will enable them to carry on severe near work when presbyopia doubles their strain.

12. Failure to cure the reflexes of eyestrain may be due to the want of bifocals.

Two separate pairs of lenses can not correct eyestrain as do the double lenses. With a distant pair only, there is an hour or more of strain every day in eating meals. There is also forgetfulness to change or indifference to the need of it, lenses are not repaired, are misplaced or lost, etc. The one disadvantage of bifocal lenses is counterbalanced a hundred times by the manifest benefits over the distant and near glasses made separate.

13. Eyeglasses being more prone to maladjustment than spectacles may be the cause of failure to bring relief of the symptoms or sequels of presbyopic eyestrain.

There are few noses capable of retaining bifocal eyeglasses in a correct position. The more expert the optician the more the attempt may be tried. This is especially true if the patient can consult the fitter at least once a month. Patients who by reason of living at a distance can not do so should not be allowed bifocal eyeglasses under any circumstances. To those with high degrees of astigmatism they must also be forbidden, except for one nose in ten thousand. Vanity causes a deal of suffering both to patient and oculist. It may prevent the patient wearing any glasses, and thus double the local and systemic reflexes. When, as usual, vanity demands eyeglasses, and the result is certain to prove bad, my custom is to tell the patient to consult another oculist. No greater ill fortune could happen to your rival than to have the patient go to him! And there is no better punishment for vanity than eyeglasses, unless it be the rest cure.

14. Premature presbyopia, or paresis of the accommodation, may occur years before the usual age, and explain failure to relieve symptoms when none of the preceding causes will do so.

The patient may have contracted a chronic habit of reading at too great a distance, and the presbyopic lenses ordered may force him to hold the page or sit at writing at a shorter distance than is comfortable or perhaps best.

This is especially true if there is exophoria or insufficient adduction power. If this is so, the adduction should be increased until comfort is secured, habitual reading or writing at, say, 20 inches may itself be a source of eyestrain.

16. The patient may have supernormal adduction power and the presbyopic lenses ordered may force him to read or write at too short a distance.

In this case, at least until the adduction lessens, the too weak lenses may cause discomfort.

17. The symptoms may not be due to presbyopia, nor to any eyestrain, but to systemic disease.

Every oculist has had many patients whose symptoms had been treated by glasses alone, or whose ocular muscles had been "clipped," when all the time there was concealed or unknown systemic disease, e. g., nephritis, diabetes, anemia, etc., or some morbid result of bad dietetic or other habits, which were the only or chief causes of trouble. This does not in the least excuse those wonderful oculists who find that all eyestrain symptoms and reflexes are due to systemic conditions. That is a good way to please the referer of cases, and to conceal inaccurate refraction. But it is not the best way to practice ophthalmology.

The preceding rules are, in fact, non-rules: they are in truth, cautions to have no rules in correcting presbyopia. Every case is exceptional and individual and requires a freedom of the mind from bias or prejudice of any kind. Precision in estimating the conditions, infinite patience, delicacy, and conscientiousness, in hunting out the individual variation there before one, and inexhaustible ingenuity in meeting all the varied and varying phases and factors, are the prerequisites.

There is but one invariable rule: Have no rule. Rules are the makeshifts of the lazy and unintelligent. The cunning rely on them, forgetful that cunning is really stupidity. Optical machines are often rules made into iron rods, scales and wheels. They may be of service if used not as dictators but as slight helpers, in the hands of the intelligent and guiding machinist, but they may serve as the excuse and ruin of those who rely on them to the exclusion of intelligence and diagnostic skill.

Any number of cases could be epitomized, illustrating the foregoing suggestions. I shall content myself with but few, because in every oculist's memory there doubtless arises plenty of examples.

Case 1.—A lawyer who carried on a tremendous amount of eye work had an enormously high and complicated compound hyperopic astigmatism. Despite a perfect correction of his ametropia by capable and good oculists, and despite the best treatment by general physicians, his dyspepsia persisted. In obedience to his demand his oculists had allowed him to wear bifocal eyeglasses. A difference of five degrees or ten degrees in his astigmatic axes, inevitably caused by maladjusted eyeglasses, rendered his ametropic correction worse than useless. They failed to cure their patient because they did not demand spectacles.

Case 2.—A woman of thirty-nine had sick headache which reappeared every few weeks despite my best correction of her low compound hyperopic astigmatism. I had three times gone over my work and found no change in her glasses was to be made. I feared I had what I had always been looking for—a typical migraine which I could not cure with glasses. Inquiry elicited the fact that the woman habitually did an enormous amount of literary work. I ordered presbyopic correction and bifocal spectacles to be worn constantly and the "migraine" has never shown a sign of itself since.

Case 3.—A healthy, clear-headed intellectual man was given two pairs of spectacles for his myopic astigmatism, a stronger or higher correction for use at the theater, driving, etc., a weaker correction for reading and daily or constant use. For a year his wife and daughter observed, without telling him, that whenever he wore the strong, or accommodation-exciting glasses he "caught cold" with coryza, hoarseness, etc., which at once disappeared when the weaker lenses were used. He used the stronger ones but few times a year. When certain of the strange coincidence his wife told her husband. In the past ten years the cold has been produced in this way, a hundred or more times. Now if his weaker glasses get "crooked," or maladjusted, miscorrecting his axis of astigmatism by a few degrees, his cold promptly appears, to vanish in an hour after a visit to the optician.

Case 4.—A gentleman of fifty years of age had consulted many of the most famous oculists because of severe and frequently recurring subconjunctival hemorrhages. Some of these had refracted his eyes, some had not, but all had followed a not uncommon custom of charging such symptoms to gout. None had found any error of refraction, except, of course, a couple of diopters of presbyopia. By the most competent authority his eyes had been pronounced mathematically emmetropic and perfect. None, of course, had used a cycloplegic. With paralyzed accommodation I found 0.25D of simple myopic astigmatism axis 180 degrees in each eye. For several years he has had no hemorrhages and by his glasses he has had also such relief from other cerebral symptoms that he has had heavy iron spectacles made for use in his bath, so that he may not be without lenses for a minute.

DISCUSSION.

Dr. Robert L. Randolph, Baltimore, said that he is surprised to find how often it is necessary to use homatropin in order to discover the astigmatism which is frequently responsible for the discomfort in these cases. The presbyopic condition, no matter how advanced, has never deterred him from the use of homatropin where there was the slightest doubt in mind as to the true condition of the refraction and he called attention to the great convenience of the cocain-homatropin discs. He usually employs two of these in each eye at intervals of twenty minutes, and an hour from the time when the first disc is introduced into the conjunctival sac the patient is ready for the examination. Results in his experience in both old and young do not differ from the results obtained when either atropin or homatropin has been used. The fact that the desired result is obtained quickly is a distinct advantage as lessening the chance of high tension, and the fact, too, that the effect is promptly nullified by eserin is an additional advantage for obvious reasons. It is no uncommon thing for a patient to be able to use the eyes for close work within two or three hours after the instillation of the eserin. It is his habit to wait till the patient has experienced decided twitchings of the lids before allowing him to leave the office. These discs can be best used when put up in gelatin capsules (No. 2 size). The smaller half of the capsule is taken off and the disc can be emptied right into the conjunctival sac, where it remains. Four capsules, each containing a disc, are used for each patient.

DR. G. C. SAVAGE, Nashville, Tenn., said that a strong ciliary muscle means a small nervous impulse and late presbyopia. The presence of a strong ciliary muscle may be determined as follows: In the first place, there is orthophoria for distance and exophoria for near; exophoria far, greater exophoria near; or esophoria far and less esophoria near. Another method of determining this is that these patients will overcome a minus lens stronger than 3 diopters—they will overcome 4, 5 or 6 diopters and sometimes 7. Whenever there is delayed presbyopia, beyond the age of 45, there has been an abnormally large ciliary muscle, requiring a corresponding small nerve impulse. A weak muscle means a strong brain impulse and early presbyopia. This condition can be determined as follows: In the first place there is orthophoria for distance and esophoria for near: exophoria far, less exophoria near; or esophoria far, greater esophoria near. A weak ciliary muscle demands a strong impulse from the tenth conjugate center in the brain. It is generally understood that the center for the ciliary muscle is intimately associated with the third conjugate center for convergence. Every excitation of the tenth center means overexcitation of the third center controlling the interni, and means esophoria for near. These patients can not overcome a minus lens of 3 diopters: they will overcome a 2.50 maybe, or a 2, or a 1, and Dr. Savage has had patients who could not overcome a minus lens of .50 diopter. Dr. Savage related the following case: A confrère sent him a patient for consultation. The lady was 28 years of age and had other troubles besides a refractive error. She had had albuminuric retinitis and now has optic atrophy. She was suffering and no one expects suffering from atrophy of the optic nerve. The physician wanted Dr Savage to help him work out the case, and in testing the case Dr. Savage found that she had orthophoria for distance and 6 degrees of esophoria for near. A plus 1.50 D. sphere gave her orthophoria in the near. That woman had a weak ciliary muscle. It required a strong impulse from the tenth conjugate center in the brain. The impulse liberated from that center caused a corresponding excessive impulse from the third center controlling the interni, and hence the esophoria. With a plus 1.50 D. sphere before her eyes her esophoria was corrected. Now the absence of necessity for an excessive impulse from the tenth center put into a normal state of action the center in the brain acting on the interni. A plus 1.50 D. presbyopic correction for that woman, only 28 years old, will be most helpful. Dr. Savage said that the corrected hypermetrope will not have, as a rule, early presbyopia, for he has an abnormally strong ciliary muscle. Correct the hypermetropia, being always guided by the muscle condition as to ordering full or partial correction, and, if in early life the hypermetropia is corrected, the patient will go beyond 45 without the need of presbyopic correction. It means delayed presbyopia because hypermetropes have abnormally large ciliary muscles.

DR. HERMAN KNAPP, New York City, said that he wears bifocals and his eyes do not trouble him at all. He is hypermetropic and presbyopic, of course, and his sight with glasses is just as good as when young. He looks at a distance and reads without even bending his head, and operates with great comfort, even when doing fine work like a capsulotomy. He recommends these glasses as an immense comfort. The line where the segments meet gives a prismatic effect, however, no matter what any one may say to the contrary. This shows particularly in walking down stairs, when a person must be cautious in order not to misstep. It is his habit to examine every patient who has any nervous trouble with the ophthalmoscope, with glasses and also with the phorometer. In all these anomalies of refraction a cure is obtained. Dr. Knapp thinks that the trouble is not in the muscle and he is astonished that Dr. Savage speaks of the weak ciliary muscle. It is a mere hypothesis which has been used to explain the different anomalies of refraction; for instance, a myopic squint. When a patient comes to him with asthenopic symptoms, after using the ophthalmoscope he tries the glasses if everything is all right with the ophthalmoscope, and, in the great majority of cases, he finds hypermetropia of .50 or 1 diopter; if he goes further and examines them with the phorometer he finds 2.50 or 3 degrees of esophoria; when he puts the convex glasses before these eyes the esophoria disappears. The person who is hyperopic 2 or 3 diopters must make a very strong effort at convergence. He must send into the ciliary muscle an impulse to do away with the 2 or 3 diopters of hypermetropia and in that way the latent hypermetropia can be detected.

DR. MARK D. STEVENSON, Akron, Ohio, said that he uses homatropin in from 1 to 2 per cent. solution while the patient waits in a darkened room. The ciliary muscle yields more readily to the cycloplegic action of the drug in a dark room since the patient is unable to read or see objects. In a light room the patient tries to use his eyes and the ciliary muscle is constantly straining against the effect of the drug; this, with the dazzling caused by the enlarged pupil, gives rise to discomfort, often congestion of the tunics of the eyeball, and headache. Dr. Stevenson uses atropia in the young, if the patient can spare the time, and homatropin in nearly all other cases. The degree of strain found in some old people's eyes is sometimes surprising. He uses cycloplegics in all ages unless he finds tension, and in people over 35 or 40 he puts one or several drops of eserin in the eyes as soon as he has completed the examination. Young myopes are sometimes unable to wear their full distant correction for near work. In some of these cases, after proper trial, it is well to give bifocals or two pairs of lenses. Occasionally young people have more close work to do than the ciliary muscle can accomplish; in some such cases bifocals or two pairs of lenses are useful. The relation between accommodation and convergence is too often neglected. It is well known that people past the age of puberty gradually lose their accommodative power until they require a presbyopic correction. It has been Dr. Stevenson's observation that these patients usually at the same time lose some of their convergence power. The patient's accommodation is generally relieved by a lens which draws the near point closer. This accomplishes two things: It necessitates greater convergence and at the same time partially or wholly removes accommodation, one of the chief stimulants to convergence. Many presbyopes have weak convergence and the additional burden added by advancing the near point gives rise to discomfort. In cases where the convergence is weak, give a farther reading distance, prism exercises with strong prisms bases out, or sometimes even combine prisms with the lenses bases in, or the equivalent by decentering. Sometimes it is well in a high degree of insufficiency, especially if combined with weak adduction and strong abduction, to perform a tenotomy of the strong or an advancement of the weak muscle. In cases with great excess of convergence it is often well to give a short reading distance and rarely use prisms. Eyeglasses with bifocal lenses properly adjusted are often worn by patients who would lay spectacles or two pairs aside. The reading angle should be correct in such cases. The patient's vocation must be kept in mind in determining proper working or reading distance. In a paper presented to this Section in 1900 Dr. Stevenson called attention to the unequal accommodation in the two eyes. If possible, give distant lenses for a few weeks before prescribing for near. Too frequently the correction for near is determined after the accommodation is tired by a long examination for distant correction; in such cases the reading or working distance will be too close.

DR. WALTER L. PYLE, Philadelphia, stated that early in his career *his attention* was directed to the necessity of careful refraction, and to the value of cycloplegics. At the meeting of the American Ophthalmological Society in Washington, in 1903, Dr. Pyle reported the case of a patient aged 50, in which he used a single instillation of a 5-grain homatropin solution to get a better view of some peripheral lenticular opacities. On the morning of the third day she had violent acute glaucoma in both eyes. Dr. Pyle found her completely blind with both cornea steaming and with the eyeballs absolutely hard. He immediately performed posterior sclerotomy, which was followed by speedy relief. He also used hot applications and eserin. Within twenty-four hours the patient had normal visual acuity. The use of a drop of eserin solution before elderly or middle-aged patients leave the office avoids dangers of this kind.

Dr. Francis Valk, New York City, stated that in his work of fitting glasses for presbyopia, the more he leaves out the scientific ideas and gets down to natural methods the better seem to be his results. His objective point in fitting glasses for presbyopia is first to put the eye in a perfectly normal condition. The history of presbyopia in an emmetrope shows that they get along in life without any symptoms of asthenopia until they become 40 or 45, and then they require glasses. If they go to an optician and buy a pair of convex glasses, stronger as they need them, these glasses will carry them through life with no trouble. So, in a case of ametropia it must be put in the condition of the emmetropic eye by correcting the refraction, and then the addition of convex glasses will correct the presbyopia. In twenty-five years' work Dr. Valk has never found it necessary to use a cycloplegic in a case over 40 years of age. Some may find it necessary to dilate the pupil, but he has not met these cases. He corrects the refraction with the most careful objective examination, confirms this with glasses and then tests the range of accommodation. The text-books say bring the near-point up to eight or nine inches, but in many cases the position at which the patient works must be considered. His work may be at the desk and, if he has a very small region, this near-point must not be brought too close to the eyes. While Dr. Valk does not approve of the use of atropin in any case over 40, yet he would not hesitate to use it if he considered it necessary.

Dr. John S. Kirkendall, Ithaca, N. Y., agreed with Dr. Gould, but believes that the presbyopia spoken of by Dr. Stevenson in young myopes is apparent but not real. It is an acquired diseased condition, and if Dr. Stevenson continues to correct this apparent presbyopia in such cases he will add to the trouble by weakening the already atrophic ciliary muscles. Dr. Kirkendall's treatment of these cases is to thoroughly atropinize these patients, work out carefully their refraction and give them the full correction for both distant and near work, thereby developing the ciliary muscles, stopping the progress of the myopia and putting their eyes in the state of emmetropia; but at or about the age of 45 recognizes and corrects the presbyopia.

Dr. J. L. Thompson, Indianapolis, said that he is not afraid of mydriatics at all. When von Graefe and others spoke of the danger they used atropin. Dr. Thompson should as soon expect to rush on the *shield of Zeus* and get off without punishment as to use atropin. Many people over 60 have some accommodative power. He uses homatropin because it can be corrected so nicely with eserin. The patient can be kept in the office until the pupil contracts. There may be a simulated astigmatism in the *opposite* meridian to the usual one and on using a cycloplegic it vanishes. Dr. Thompson sometimes examines women patients at 38 *and then again* ten years later and they are still not 40. Find out their reading point and judge for oneself about their age. If patients refuse the bifocals they may have two pairs of glasses. Dr. Thompson thinks that Dr. Gould [illegible] the matter a little. Sometimes on a bright day Dr. Thompson has *migraine* when passing a fence or on looking at [illegible] bright carpet. He has had it suddenly develop when getting ready to operate, caused by reflection from the white caps of the sisters.

Dr. George M. Gould stated that he uses homatropin and cocain—two-thirds homatropin and one-third cocain; and does not hesitate to use it up to the age of 60, or any time, because in suspicious cases he *immediately* brings back the pupil and the accommodation to normal with eserin. This he does with young and old if they wish to use the eyes the same day. He uses the eserin in solution of 2 gr. to the ounce, and the patients read as before in fifteen or twenty minutes after several instillations. In presbyopic cases one avoids in this way all possibility of glaucoma. The stronger eserin may cause a little spasmodic twitching for a few minutes, but otherwise no harm, so far as Dr. Gould has observed. Dr. Gould does not see how Dr. Valk can correct presbyopia without the use of a cycloplegic and he will be grateful to anyone who can show him how to do it. He believes in correcting the astigmatism and in the slightly misplaced axes he can not do this without a cycloplegic. He finds a large number of cases with axes 10, 15 and 20 degrees off from the vertical or horizontal, and in young people that, in what he calls "the dominant eye," will produce tilted head, which often brings about compensatory spinal curvature.

THE USEFULNESS OF THE OPHTHALMOMETER.*

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The ophthalmometer has gone through various stages of appreciation, depreciation and overpraise, back and forth over the same ground again and again; and still we have its enthusiastic advocates, claiming that it does away with the necessity of using mydriatics, while others consider it as merely an expensive scientific toy, utterly unreliable and of no practical value. Is it not worth while, then, to give the subject a few minutes of dispassionate consideration? Let us first take up the question: Is the ophthalmometer of any practical use in refraction work?

Those who argue against its usefulness base their argument on the ground that it only shows corneal astigmatism. The argument must turn largely, then, on the frequency and amount of lenticular astigmatism. Many authorities state that most of the astigmatism is corneal, and Suter and others explain the subtracting of half a diopter from the finding with the instrument in cases with the rule and adding the same amount in those against the rule by the fact that the lenticular astigmatism averages half a diopter against the rule. There is abundant testimony that this allowance should be made, and this certainly accords with my experience. A case will illustrate:

Case 1.—Miss G., a sufferer from headache back of the eyes, had worn +0.25 sph. right eye, +0.50 sph. left eye, for two years without relief and they blurred her distant vision, which was improved from 15/15— to 15/10 with +0.50 cyl. ax. 90° right, +0.25 cyl. ax. 90° left. The ophthalmometer showed 1 D. right, 0.75 left, axis 90° or 180°, *with the rule*. Assuming it to be probably convex from information already obtained and subtracting 0.50 D., the usual allowance, we get the same glasses she saw best with. These were prescribed and gave satisfaction.

The ophthalmometer here only increases our confidence. This case is a type of such a common experience as to seem trite. Everyone doing refraction work recognizes the difficulty in regard to cases with oblique axes, and the following illustrations are of this class:

Case 2.—A schoolboy, R. T., was referred to me because his teacher noticed that he saw poorly. Vision was found to be about 15/50 each eye and no glass seemed to improve it. The ophthalmometer showing 3 D. axis 15° or 105° right, 3 D. axis 165° or 75° left, we then tried +2.50 axis 105° right, +2.50 axis 75° left, which brought vision up to nearly 15/20. The astigmatism, axis and amount were revealed by the instrument.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Case 3.—Miss C., aged 18, consulted me Sept. 15, 1902. She had been operated on for internal squint when a little child. For some time the left eye had been turning up and a little out, worse when the eye was tired. R. V. 15/15, L. V. 15/40; not improved by any glass. In fact, she thought this eye nearly useless. We talked of operating on the muscle, as she was fond of going into society and was much embarrassed by the disfigurement. Here the ophthalmometer came to our rescue, showing 3 D. axis 30° or 120° left eye and +2.50 cyl. axis 120° with +1 sph. brought vision in this eye up to 15/15 practically. A small amount of astigmatism was found in the other eye. She has worn the glasses then prescribed with greatest satisfaction ever since, the eyes being perfectly straight under the glasses.

Who would say after such an experience that the ophthalmometer was of no use? In the cases so far cited no mydriatic was used. Shall we say, then, that this instrument makes it unnecessary to use mydriatics? While there are many cases like the above where it seems safe to prescribe without paralyzing the accommodation, and while the ophthalmometer, by increasing our confidence in the result already obtained, or giving first clew to axis and amount of astigmatism, confirmed later by other tests, adds very greatly to the class that can be fitted safely without a mydriatic, yet we feel still greater confidence after an examination under cycloplegia in any case, and in many cases it is indispensable. For example:

Case 4.—C. T., wearing +1.50 sph. without relief to eyeache and with poor vision, seemed to accept +0.75 sph. each eye, but the ophthalmometer showed 0, which means either +0.50 cyl. axis 180°, or —0.50 axis 90°. Under homatropin his full correction was +1 D. sph. = +0.50 axis 180° both, thus confirming the instrument as to the astigmatism and correcting the mistake that would have been made by prescribing from the test by the lenses alone and showing what neither of the other examinations did, that there was compound hyperopic astigmatism.

But there is another advantage in using a mydriatic; it makes the examination with the ophthalmometer easier and more reliable. For example:

Case 5.—Miss J. A. came to me Aug. 24, 1902, with symptoms of eyestrain. She seemed to see best with +0.50 cyl. axis 105° right, +0.50 axis 75° left, and the ophthalmometer indicated the same. These were prescribed and gave partial relief for a year, when she returned to see if they could be improved. This time homatropin was used and the same amount of astigmatism was shown both by the test lenses and ophthalmometer, but instead of the oblique axes both methods gave 90°.

This shows that the axis of the corneal astigmatism may be made to change probably by the lids pressing on the balls in straining to see, and this is avoided or lessened when the eye is put at rest by the mydriatic. A few other cases have shown different axes under the mydriatic from those of first test.

In view of what has been said it might seem unnecessary to consider the question: Is the ophthalmometer an infallible guide? But it will be understood that we mean subject to the limitations already expressed. In other words, Can we rely on the ophthalmometer in all cases, both as regards axis and amount of astigmastism, even after use of mydriatics? We can answer this best from our case book:

Case 6.—Mrs. M., a sufferer from headache, had a small astigmatism recognized by the ophthalmometer in both eyes, axis 90° or 180°, while test lenses under homatropin gave left axis 135°, which was ordered.

Case 7.—A little girl with frontal headache saw best with +0.50 axis 135° right, +0.50 axis 45° left, and homatropin confirming this, they were prescribed in spite of the fact that the ophthalmometer did not give oblique axes, and they relieved the symptoms.

Case 8.—Miss M. on first test took +0.50 axis 90° right, +0.50 axis 180° left, which was apparently confirmed by the ophthalmometer, but homatropin showed simple hyperopia in left eye.

A few other similar cases have been observed, and two in which the instrument gave 1.D. more astigmatism than homatropin.

It is evident, then, that we have not an infallible guide in the ophthalmometer. Some one may ask, Do not the cases just cited prove as much against the instrument as the other cases did in its favor? They would, if numerous; but these cases are very exceptional, not types of many found in every-day experience like those cited in the argument in favor of the usefulness of the instrument. In fact, I have given nearly all the exceptional cases observed from June 1, 1901, to Jan. 1, 1904, under this head, and most of these can probably be explained as examples of unusual amount of lenticular astigmatism, or those where accurate ophthalmometric readings were rendered impossible by undue action of the lids, restlessness of the patient or other similar difficulties.

If not infallible, what are the limitations? This has already been answered, in part at least. It does not show lenticular astigmatism, which is an important factor in some cases, and there is some liability to mistakes from hasty work of the observer, restlessness of patients, contraction of lids, failure to look in direction desired, etc. Of course, it does not show hyperopia or myopia; in fact, it does not even show whether the astigmatism is hyperopic or myopic, except that a long radius suggests the former, a short one the latter. Yet it is very useful in spite of these limitations, and this leads to a comparison between this and other methods of measuring refraction.

This comparison will be limited to use of test lenses, with and without mydriatics, retinoscopy, the ophthalmoscope and the ophthalmometer. The objection to relying on the test lenses without a mydriatic is that the patient often accepts the wrong glass on account of undue or irregular contraction of the ciliary muscle. We do not need to cite cases to show that this method alone is very uncertain. Cases already cited bring out the advantage of supplementing this by the ophthalmometer to confirm or correct the result of the tests, and in many instances we find vision better with the glass suggested by the instrument.

However doubtful we may be about results of tests with lenses alone, there is probably no other method so sure and satisfactory when supplemented by the use of homatropin, scopolamin, atropin or other substances to control the accommodation. In other words, what the patient sees best with, when the eyes are under the influence of a cycloplegic, is the measure of his refractive error, to be relied on, if at variance with the findings by other methods.

Yet even here we should be careful that we have what the patient actually sees best with, and not what he seems to see best with. I have seen examinations under a mydriatic where astigmatism was found with axis perpendicular, apparently, in which the ophthalmometer gave

15° off, and later trial of this axis actually showed improvement in vision. It may be said that this ought to be discovered by trying the cylinders at various angles in the ordinary tests, but we know that patients often fail to detect small differences, and it frequently takes several trials and much care to bring them out, so that an instrument which quickly suggests the axis is of immense value.

The ophthalmoscope is of greatest assistance in high degrees of refractive error, enabling us to measure them approximately in a very short time, but it is not of much account in small defects, which form quite a large proportion of our work.

Retinoscopy would probably be voted by the majority of oculists the best (objective) method of measuring refraction. More is to be learned from it than from any other one (objective) method, as it shows hyperopia or myopia as well as astigmatism, and its measure of the latter is not limited to corneal astigmatism, but includes the lenticular as well. Now, if this all be true, practically as well as theoretically, and if we could all measure by this method any kind of refractive error down to 0.25 D., as some claim to do, no other method would be necessary, and even the trial case might be dispensed with. But retinoscopy has its drawbacks, too; it requires a mydriatic in all cases, and even then one has to be careful to get the refraction of the center of the field, and not the periphery. The method is also a slow one and necessitates the awkward changes of lenses from the trial case, or use of some cumbersome apparatus like the Würdemann skiascope in the hands of the patient, which can not be used easily, especially with children. Moreover, there is ground for skepticism as to the skill claimed by some to measure even 0.25 D. of any kind of refractive error by this method in a few minutes; at least such skill is limited to a few. Nevertheless it has some advantages, and there is ground for much that is said in its favor. It is especially valuable in examining little children and illiterates.

While the ophthalmometer gives less information than retinoscopy, what it gives is obtained more easily, more quickly and is more positive. In other words, it is the quickest and surest way of measuring corneal astigmatism, and since we have a definite rule for the majority of cases in regard to the relation between corneal and total astigmatism and can determine the hyperopia or myopia by the ophthalmoscope and test-lenses, we have, in my judgment, in the ophthalmometer, combined with these other means, a method for general use not surpassed by any other for accuracy of results or speed in execution. An additional point is the fact that this instrument is so much more valuable in those cases where a mydriatic is refused, and adds so largely to the number that can be quite safely fitted without the annoyance and loss of time due to paralysis of the accommodation.

CONCLUSIONS.

1. The ophthalmometer is not merely an expensive toy, but a very useful instrument.
2. It shows the corneal astigmatism which, in most cases, is 0.50 D. more than the total astigmatism if with the rule, or the same amount less if against the rule.
3. It does not do away with the necessity of using mydriatics, although it adds largely to the number that can be fitted with comparative safety without them.
4. It is not infallible as regards axis or amount of astigmatism, but the cases in which it misleads are exceptional and probably the result, chiefly, of unusual difficulties and irregular or extraordinary lenticular astigmatism.
5. It is one of the quickest and surest methods of determining astigmatism, either axis or amount, frequently giving the first clew.
6. In connection with the ophthalmoscope and test-lenses (in many cases with use of a mydriatic), it is as good a routine method of measuring refraction as we possess.

This is submitted not dogmatically, but with the hope of starting a discussion which will give us the exact truth.

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DISCUSSION.

Dr. Wendel Reber, Philadelphia, said that he has used the ophthalmometer a great deal, but that he is not so enthusiastic as Dr. Heath. He uses it almost invariably in his office work, and, while he does not claim to be able to measure cases to within a quarter diopter with it, he can measure down to such a degree that he knows about what the corneal astigmatism is. Mydriatics, of course, are always refused by the patient at first. The ophthalmometer is most valuable, he thinks, as to its negative evidence; that is to say, in the lowest errors one does not get reliable evidence, but where there is one or more diopters one gets very good results. In cases of cataract, of course, it is important to know the amount of corneal astigmatism. While it is an important office adjunct, at the same time it is certainly not the faithful, accurate servant that retinoscopy is.

Dr. J. M. Ray, Louisville, Ky., declared that, while recognizing that the ophthalmometer does not reveal the absolute amount of astigmatism in all cases, yet in daily use he thinks it invaluable as an aid in finding the astigmatic error. It is usually accurate as to the axis. He has used it for fourteen years on several thousand cases and would feel lost without it.

Dr. C. F. Clark, Columbus, Ohio, stated that he has been a persistent user of the ophthalmometer, and feels as Dr. Reber does about it. He asked why, in post-cataract cases, we do not obtain a correct result with the ophthalmometer. If the corneal astigmatism is accurately shown by the instrument, he asked why, when the lens is removed, we can not get a correct reading. There may be three diopters with the ophthalmometer, when only two will be the correct estimate.

Dr. Edward Jackson, Denver, said in reference to Dr. Clark's question, that the scale of the ophthalmometer is made out for the complete eye; it does not fit the aphakic eye; it does not give the true curve. After cataract extraction, there is an area toward the corneal section that shows the greatest departure from the original curve. He uses the ophthalmometer in every refraction case, but he does not depend on it. It is like the averages in presbyopia. One must test by the other methods afterward and see if it is correct.

Dr. F. C. Heath, Indianapolis, agreed with Dr. Jackson that the ophthalmometer is not to be relied on alone. It is not infallible. He does not consider it an exaggeration to say that he finds in 75 per cent. of his cases of astigmatism that the ophthalmometer is correct.

The Abdominal Aorta in the Aged.—Bauer holds that the abdominal aorta is frequently the site of a chronic aortitis which less frequently affects the arch (*Arch. Gen. de Med.*). The symptomatic manifestations are irregular as a rule, but occasionally symptoms point more or less directly to the condition especially in emaciated individuals in whom palpation and auscultation can be employed. In fleshy individuals the difficulty is greater, but persistent digestive disorders, lassitude, early fatigue, various sensory symptoms such as local feelings of cold, numbness, vague pains in the limbs, sometimes painful cramps, trophic disorders, etc., may point to the condition. It is often, however, undiagnosed; in rare instances attention may be called to the condition by an aggravation of acute or subacute aortitis.

INTERNAL AND EXTERNAL HEMORRHOIDS.

WITH SPECIAL REFERENCE TO THEIR TREATMENT.*

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PHILADELPHIA.

I have been requested to address you on the subject of hemorrhoids, viewed so far as possible from the standpoint of making my remarks of value and interest to the general practitioner. Time permits of only a brief synopsis of the subject.

Without making a thorough examination of a given case, no certain diagnosis can be made and no plan of treatment can be carried out with any degree of satisfaction. In most departments of medicine this fundamental principle is carefully observed, but possibly owing to a false sense of modesty on the part of patients afflicted with rectal trouble, some physicians are led to treat such persons without an exploration, either visual or digital, of the affected region. Consequently, it is not an infrequent occurrence for me to see a patient with an external hemorrhoid, greatly aggravated by the vain efforts made to push it within the anus. This illustration will suffice, no doubt, to emphasize the necessity of examining every case of presumed rectal trouble. Such an examination should include not only an ocular inspection of the parts outside the anal canal, but likewise a digital investigation of the rectum. It is only in cases of irritable ulcer of the anus (fissure) that an examination with the finger should be omitted. A rectal examination is not a very pleasant one, either to the practitioner or to the patient. yet without making it the physician's reputation, as well as the patient's health, may suffer.

Assuming, therefore, that attention has been paid to the proper methods to insure the making of a correct diagnosis. we are prepared to consider the variety of hemorrhoids, preliminary to a consideration of the treatment of the individual forms.

EXTERNAL HEMORRHOIDS.

External hemorrhoids are divided into the venous, the cutaneous and the compound.

Venous.—The venous variety occurs in three forms: 1. As a marked varicose condition of the plexus of the external hemorrhoidal veins. 2. As a thrombosis of this plexus. 3. As a clot of extravasated blood, due to a rupture of a varicose vessel. The existence of this last variety is denied by some authorities, but I have seen and operated on a number of such cases sufficient to warrant the classification given.

Cutaneous.—The cutaneous pile consists essentially of a hypertrophy of the skin surrounding the anus. It frequently is the result of a former venous hemorrhoid, a fold of skin being left after the clot has been removed. either by absorption or operation. When uninflamed, it occasions no great inconvenience, but when aggravated by improper diet, irregular habits, uncleanliness. etc., it invariably causes the patient an amount of suffering quite disproportionate to the pathologic appearance.

Compound.—The compound or so-called externo-internal pile is one in which the tumor is not only largely external, but is also intimately associated with an internal hemorrhoid, and is, therefore, in part, covered with mucous membrane.

INTERNAL HEMORRHOIDS.

Internal hemorrhoids are divided into the varicose, the capillary and the compound or intero-external.

Varicose.—The varicose or venous internal hemorrhoid is the form of tumor most frequently met with in the bowel, and consists of a varicosity of the internal hemorrhoidal veins, with a hypertrophy of the surrounding tissue in which these vessels are embedded.

Capillary.—The capillary or nevoid hemorrhoid consists of a small, raspberry-like arrangement of the arterial capillaries within, or just beneath the surface of the mucous membrane of the rectum. They are the source of frequent hemorrhages due, no doubt, to a covering of a very thin layer-of epithelium, which is readily ruptured. They do not protrude and can not be located by digital examination.

TREATMENT OF EXTERNAL HEMORRHOIDS.

The local treatment of these tumors may be considered under the two heads, the operative and the palliative. It is only when these tumors are inflamed that patients suffer marked inconvenience, and find it necessary to consult a physician, and it is at such a time that I believe the best method of treatment is that of removal. If, however, the patient refuses to submit to our judgment in this matter, recourse must be had to local applications for the relief of the suffering incident to the acute inflammatory stage. What we have to say regarding the treatment of piles which are external applies with equal force to all the varieties included under the classification of this form of hemorrhoids.

Operative Treatment.—It is only by this plan that we may effect a radical cure. It may be accomplished by one of three methods, named in the order of our preference: (*a*) excision, (*b*) simple incision, and (*c*) excision and primary suture of the cutaneous edges of the resulting wound.

(*a*) EXCISION is the mode of treatment now employed by most proctologists for the cure of all the various forms of external hemorrhoids when the patient is seen in the acute stage of the trouble. The operation consists in washing the parts well with the tincture of green soap, alcohol and creolin, so as to render the field of operation as aseptic as possible. The hair is not shaven, as experience has shown that it is unnecessary. Formerly when the hair was removed, its subsequent growth was most annoying to the patient, feeling somewhat as though the vicinity of the anus had been converted into a pin cushion (by no means an empty one). The tumor to be removed is now anesthetized by means of a hypodermic injection of a 2 per cent. solution of the hydrochlorate of cocain. of which from 10 to 20 minims usually suffice. In connection with the use of local anesthetics, attention is called here to a matter. with which I have had no personal experience, but which justifies note. to-wit: The work done by Dr. Samuel G. Gant of New York City in the use of sterile water anesthesia in the office treatment of rectal diseases.[1]

Before removing the needle of the syringe, time is given the solution to permeate the tissues. The pile is next grasped by some suitable instrument, such as a hemostat (sometimes by two. if the hemorrhoid be a large one). and the tumor is rapidly removed in its entirety by means of a pair of scissors curved on the flat. It is rare that any vessels of size are met with and the ease with which, in this region, a bleeding vessel can retract and contract, obviates any necessity for the use of the ligature. All clots are removed. The resulting wound is now lightly packed with cotton, which is changed several times until most of the bleeding is stopped. The flow of blood is encouraged for a short time so as to get rid of any excess of cocain remaining in the vicinity.

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* Read before the meetings of the Northwestern Medical Society and of the Medical Society of Germantown. Philadelphia. 1904.

[1] New York Medical Journal. Jan. 23. 1904.

Finally, when active bleeding has ceased the wound is packed with gauze, a 10-grain iodoform suppository is inserted into the rectum, and over the seat of operation is placed a firm pad of gauze and cotton and then a "T" bandage completes the dressing.

(*b*) Simple incision requires a similar technic to that described for excision, with the exception of the operative part. This latter is accomplished by catching the parts on either side of the tumor between the thumb and forefinger of the left hand and transfixing its base in the direction of the radiating folds of the anus with a sharp-curved bistoury and cutting outward. Gentle pressure will cause the extrusion of most of the clots; any of them remaining may be picked out with a pair of forceps. The subsequent treatment consists in packing the wound with gauze and then using a similar dressing to that advised in the operation of excision. The main disadvantage of this operation consists in the fact that the skin distension occasioned by the inflamed pile is left, and may subsequently become inflamed or may refill with blood.

(*c*) Excision Combined with Primary Suture of the Resulting Wound.—The essential difference between this method and that of simple excision consists in the close apposition of the wound by carefully buried silkworm gut, or some similar, suitable material. The advantage of the operation lies in the hope of obtaining primary union. I have practically discarded this method, as the suture tracks are liable to become infected, and I think the mechanical presence of the sutures, together with the constriction they produce, combine to add materially to the annoyance to the patient than when the parts are left to heal by granulation.

The Non-Operative or Palliative Treatment.—This consists primarily in keeping the parts thoroughly cleaned by bathing with water as hot as can be borne and in applying some soothing and astringent lotion during the acute inflammatory stage. Some of the preparations which I have employed with satisfaction are: Ichthyol, 50 per cent., combined with equal parts of lanolin and ung. aquæ rosæ; or a mixture, containing one ounce of the fluid extract of hamamelis; a half-ounce of the fluid extract of hydrastis; a like amount of the compound tincture of benzoin and two drams of the tincture of belladonna. This solution is to be well shaken before using, and is kept in the bottle and placed either in hot water and applied frequently by means of hot compresses to the affected part, or if cold is more agreeable to the patient, then the medicine is surrounded with ice and compresses wrung out of ice water are kept saturated with the mixture and are applied in the same manner as when they are used hot. Another useful mixture is the strong subacetate of lead solution, combined with an equal quantity of the tincture of opium, of which a teaspoonful is added to a wine glassful of cold milk and applied with frequency to the anus. In addition to these measures, the bowels should be freely moved, and a light, easily digested diet, with rest in bed, prescribed. These remedies will, as a rule, cause the inflammatory symptoms to subside within a few days, but usually a thickened tag of skin will remain, which is liable at any time, on the slightest provocation, to become inflamed.

TREATMENT OF INTERNAL HEMORRHOIDS.

With the exception of the nevoid or capillary pile the treatment of these tumors may be discussed under the following classification: (*a*) Preventive, (*b*) palliative and (*c*) operative.

Prior to taking up this part of our subject, it may be well to say a few words regarding the treatment of the capillary hemorrhoid. The safest method of effectually dealing with this condition consists in the use of the electrocautery applied by means of a small electrode. Anesthesia is not essential. Care must be exercised not to cauterize too deeply. A very old and deservedly popular treatment of this form of pile is the use of fuming nitric acid. Care must be exercised not to excite too intense an inflammatory reaction. The pile is caused to protrude into a speculum, is thoroughly dried with cotton on the end of an applicator, and then the acid is applied all over its surface by means of a rod of glass or a stick of wood. Before removing the speculum, which is left *in situ* for three or four minutes, a dossile of cotton is placed over the treated area so as to absorb any excess of the acid.

Caution in the use of the acid is necessary in order to avoid its getting on the cutaneous surface or on the margin of the anus. A good preventive measure against this accident is the smearing of the region named with glycerin or vaselin. One treatment of the acid usually suffices to stop the bleeding, but two or three applications may be required to completely destroy the tumor. These applications may be repeated at intervals of three to seven days.

Preventive Measures.—These consist, to a large extent, in the avoidance of the sedentary habits, the use of improper toilet paper, such as newspaper, printers' ink being a decided irritant, excessive venery, improper diet, the excessive use of alcohol or tobacco, and last, but not least, the constantly increasing employment by the populace of drastic purgative medicines. To cure the constipation, which is the result of the forenamed conditions, and which, to my mind, is the most frequent cause of piles, it is essential that regularity be observed in the time of going to the closet. This is the first step to be taken in the correction of this condition. Patients should be directed to go at the same hour daily, whether the desire exists or not. Before or after the morning meal will usually prove the best time. Physical exercise is another very important factor in correcting costiveness. To be of benefit it must be employed regularly, spasmodic efforts being harmful rather than effecting good results. Certain articles of food often aid in the removal of this affection, such as the fruits, of which apples, oranges and prunes are the best.

Medically, the treatment of constipation covers a wide range of remedies. No one plan can be outlined that will benefit all, or even the majority of persons so afflicted. It is impossible to consider this phase of the subject further, as it would necessitate prolonging this article to an unreasonable length.

Palliative Means.—This plan of treatment to accomplish the desired results must embrace a three-fold purpose: 1, The reduction of any inflammation; 2. the arrest of hemorrhage; and 3, the prevention of prolapse of the tumors. It also includes careful attention to all the details enumerated under the head of preventive measures. In the early stages of the hemorrhoidal formations, cold water will often prevent further annoyance, when applied directly to the anus on a sponge, and also by injection into the bowel of a small quantity. The method of sponging the parts must be carried out systematically and regularly. To be successful, a large natural color sponge (one not bleached) must be secured about the size of one's fist.[2] This is soaked in cold water, and pressed against the anal region until all the fluid is extracted, and this procedure is repeated anywhere from fifteen to twenty-five times. The application of the water should be made both night and morning, and especially after a stool, when a protrusion is most liable to occur. The enemata need only be employed just prior to the time when the bowels are ordinarily evacuated. Sometimes considerable benefit is derived from an injection of a small quantity of cold or even ice water into the rectum, immediately after the movement of the bowels, and retaining it as long as possible.

For the relief of inflamed hemorrhoids, Dr. D. G. Gant[3] advises the use of the following simple ointment, which is very effective:

℞. Morphinæ sulphatis................gr. viii |5
Hydrargyri chloridi mitis..........gr. xii |7
Vaselini ....℥i 30|

M. Sig.: Apply freely in the rectum to the tumors and about the anus. Always bathe the parts with hot water before applying the salve.

The tendency of piles to bleed may be stopped by the use of suprarenal extract, either in the form of an ointment or a suppository, ten grains to a dram when used in a salve, and in doses of five grains when a suppository is employed. The prolapsing of the tumors is best arrested by the use of cold water, as previously advised. A useful suppository, in this connection, is one advised by Dr. James P. Tuttle:[4]

℞. Ichthyol
Tannic acid, āā........................gr. v |3
Ext. belladonnæ
Ext. stramonii, āā....................gr. 1/3 |02
Ext. hamamelis ....gr. x |6

M. Ft. suppository No. i.

Operative Measures.—Of these methods I have only time to give a brief summary of the opinions I have formed regarding five of the methods, to-wit: 1, Divulsion; 2, injection; 3, ligature; 4, clamp and cautery; and 5, Whitehead's operation.

1. DIVULSION.—This operation, done under nitrous oxid gas and oxygen, often exerts a most beneficial temporary effect, especially when a patient is suffering from strangulated piles and refuses any more radical treatment. Relief for a time is obtained thereby also from constipation, but the effects, I regret to state, are not permanent unless the patient adheres to the rules laid down for the prevention of costiveness. The operation of divulsion is an essential preliminary step to the treatment of a patient by the Martin, of Philadelphia, injection method, the details of which are soon to be published by the son.

Under gas, muscular relaxation does not obtain as in the use of ether. Hence dilatation under gas can be more rapidly induced, as we have the sphincteric rigidity as a guide in knowing exactly how much force may be employed in the individual case. The operation consists in overstretching the muscles with either the fingers or thumbs, or both, until all spasm is overcome. Care must be exercised not to tear the parts. My experience with this method, employed especially for the cure of fissure (irritable ulcer of the anus), enables one to say that the time occupied in the performance is less than half that under ether.

This operation is, therefore, indicated for the temporary relief afforded in a case of strangulated piles, when other operative measures are refused by the patient, and as a preliminary step to the treatment of piles by the injection method.

2. INJECTION.—Radical cures are effected by this means. Various formulæ are advocated. The principal difference in the methods being (1) in the use of strong solutions in large quantities, which cause a necrosis of *the entire hemorrhoidal* tumor; and (2) the employment of weaker solutions and smaller portions which, as my friend, Dr. James P. Tuttle,[3] expresses it, "produces an inflammatory induration and choking of the circulation, which is followed by shrinking and atrophy of the piles without ulceration or sloughing." In a paper, "The Treatment of Hemorrhoids by the Injection Method," reprinted from the *Therapeutic Gazette*, August, 1897, I detailed the method which I at that time employed, and expressed the conviction that the plan of treatment was efficient and satisfactory. (My later experience in this line I gave in a paper at the annual meeting of the Pennsylvania State Medical Society, Sept. 26-29, 1904.)

3. LIGATURE.—Some of my distinguished colleagues regard the use of the ligature as the ideal operation for the radical treatment of hemorrhoids. Dr. Joseph M. Mathews[5] states, quoting Erichsen, that "all external piles should be cut off, and all internal piles tied, and that he (Mathews) does not think that the advice then given can be improved on, even to this day. I am certain that in the hands of my skilled friend the operation proves all that he claims for it.

4. CLAMP AND CAUTERY.—This is the procedure which holds my preference over all other methods for the radical cure of hemorrhoids. A brief summary of the reasons why I view the operation in this light consists (1) in the fact that patients suffer the least pain; (2) that their recovery is quickest; and finally (3) that the constitutional effects, such as inability to urinate without catheterization, is least disturbed. The time required for a cure to be effected by this operation is at the outside two weeks. A patient after the operation has the bowels moved on the third day; is allowed to get out of bed on the fifth to the seventh day, and then is permitted to go home in from seven to ten days.

5. WHITEHEAD'S OPERATION.—I have never performed this operation, being unable to bring myself to a belief that the cases of hemorrhoids which have come under my observation justified the risks attending its performance. Not only are all the delicate structures in the anal region removed by this procedure, but there is also the grave possibility of a stricture following, should healing not occur by primary union. The plan of operation, in itself, reflects considerable credit on the ingenuity of its distinguished originator. I question, however, it ever reaching a popular professional employment.

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[2] The size of the sponge refers to one in the dried state.

[3] Diseases of the Rectum and Anus, second edition, 1902, p. 431.

[4] Diseases of the Anus and Rectum and Pelvic Colon, 1902, p. 617.

[5] A Treatise on Diseases of the Rectum, Anus and Sigmoid Flexure, New York, 1892, p. 158.

Dr. Charles M. Kelsey[6] epitomizes this entire subject in the following advice given to students attending his clinic:

> If you wish to radically cure your patients with the least possible pain, loss of time, confinement to the house, and risk of accident, use the clamp and cautery.
>
> If you wish to accomplish the same results with no more risk, but with more pain, more local and general disturbances, use the ligature.
>
> If you wish to take an hour to do what can as well be done in a few minutes, and gain nothing more by it in the results, use Whitehead's operation.

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PRE-OPERATIVE AND POST-OPERATIVE TREATMENT OF SURGICAL CASES.*

L. SEXTON, M.D.
NEW ORLEANS.

The question has often occurred to me that some surgeons at least view all therapeutic measures as more or less empirical or useless, and lay too much stress on what can be accomplished by operative procedure alone.

Specialists in any given line are prone to look on any given subject from their point of view; in fact, we are of the opinion that many surgical cases before operation are not treated as they should be, so as to prepare them for the great ordeal and shock incident to a major operation, and as a result of this lack of treatment or proper preparation before operation, they are likely to have to be overtreated after or during the operation.

As a matter of course, in emergency surgery, we often have no time for general treatment, but many other surgical cases are materially benefited by proper attention to their general health, the careful flushing out of the bowels, kidneys and liver; the regulation of the heart as to its beat and tone; respiration as to its depth and regularity, and the proper building up of the nervous system and the blood count by suitable medication.

We have seen much good result from dieting, tonic capsules of iron, quinia, strychnia and cascara or liquid preparation of iron and manganese preceding some operation, especially in anemic malarial subjects, which, without the previous building up, would hardly have been able to undergo the shock of any serious operative interference. In other cases, where the long drain of chronic diseased conditions have undermined the nervous and circulatory systems, much good may be accomplished by giving digitalis, strychnia and iron, till the heart is toned down by digitalis, and the nervous system braced up by the action of the strychnia and the blood count built up by the iron. As a matter of course, no imperative operation should be made to wait for the result of such medication, but the idea that we mean to convey is that when any such case may have to wait from any cause, the period of such waiting should be utilized in the general up-building of the patient's vitality.

Many times surgeons are called on to operate on patients who have led rather fast lives; who have not only burned the candle at both ends, but have overtaxed the stomach, overworked the liver, and kept the kidneys choked with excrementitious material which should have been flushed out. All such cases are very much benefited by thorough purgation with calomel and soda, or any other simple cathartic, if mercury is contraindicated. The thorough emptying of the bowels and stimulation of the secretions does away with half of the vomiting, which we have seen in cases which have not been properly purged before the operation.

Regulation of diet for several days previous to an operation so that no indigestible material is left in the alimentary tract, is another important detail to look after. The greater the quantity of water imbibed and the better the kidneys and bowels are flushed out, the better the chance for the patient to stand the operation.

In emergency operations one-fourth grain of morphia, enemas of hot milk, coffee and whiskey all tend to ward off shock. In any serious operation, Professor Smith recommends the previous administration of whiskey almost to the point of intoxication.

This plan is more suitable for subjects accustomed to drink than to follow as a general rule. The application of bandages formerly recommended to store up blood in the extremities is not practiced to any extent at present, but the saving of all the blood possible by the Esmarch bandages and the elevation of the limbs to be amputated, is doubly important in all very young or old subjects.

Mikulicz found that blood regeneration in an operation in which 1 per cent. of blood was lost, was made up in from two to five days; that 3 per cent. was made up in from five to fourteen days, and 4 per cent. was regenerated within thirty days. Usually we expect the blood regeneration to be complete within fourteen days. Mikulicz never operates on a patient whose hemoglobin is under 30 per cent. In all anemic and accident cases, where a great amount of blood has been lost, this 30 per cent. hemoglobin test is a good rule to follow, waiting, if possible, to build up the hemoglobin to the required 30 per cent. standard before operation.

We often see mucous patches and syphilitic ulceration of mouth, tongue and throat that in some degree resemble epitheliomatous growths so closely that it is hard to differentiate between the two. Recently such a case came under my observation, under the treatment of a throat specialist, who informed the patient that he had cancer of the tongue and tonsils, and must undergo a complete removal of those organs with all the deformity and consequent inconvenience incident thereto. The pathologist had examined the tumor and reported it an epitheliomatous growth. It certainly looked suspicious, and had a cancerous history, but behind all of this was also a vague syphilitic history. The patient refused to be operated on without seeing another specialist, who, on consultation, decided to try the test of free administration of iodid of potash and mercury, so the patient was given 20, 30 and 40-grain doses of iodid of potassa three times daily, well diluted, after meals, combined with protoiodid mercury pills. The effect of the treatment began to show after the first week, in diminishing the size of the ulcer and causing it to become paler and less hemorrhagic. Two weeks noted more marked improvement, and within a month the tumor had disappeared and the ulcer healed. In all cases of ulceration about the throat and tongue in syphilitic suspects, give the test treatment with iodid of potash and mercury, before any operative procedure is suggested. The time required for the test is only one month. The power of iodid of potassa and mercury in effecting such cures is almost miraculous. This recommendation, if followed, will clear up many suspicious diagnoses.

So much for pre-operative treatment. Let us now turn our attention to the patient who, from loss of blood, shock and anesthesia, or any other cause is *in extremis,* as the antiseptic details of modern surgery tend to prolong operations and to the production of shock.

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[6] The Treatment of Hemorrhoids, New York Med. Jour., June 16, 1894.

We can hardly speak of post-operative treatment without going into the definition and details of shock. The demand for treatment is usually brought about by the loss of blood, shock or fat embolism. The essential condition of each is anemia of the brain, fast, weak-acting heart, inhibition of nerve force, with reflex paralysis, exhaustion of the active force of the medulla oblongata and spinal cord, accompanied by subnormal temperature. The weakness of the heart's action, combined with the paralysis of the vascular tone disturbing the circulatory balance, the abdominal veins become overfilled by gravitation, and the right side of the heart is greatly distended. These conditions necessarily lessen the amount of blood in the arteries. If this arterial pressure is very much lessened, anemia both of the lungs and brains soon follows. A slight degreee of shock may follow almost any traumatism or great loss of blood, but it is more severe in contusions and gunshot wounds of the viscera, crushing injuries of the extremities and testicles, and to burns and scalds extending to half or more of the body surface. We can differentiate hemorrhage from shock to some extent by the blood count, which should not fall below 3,500,000 The nature of the injury will also assist in making the diagnosis. In shock, circulation is vitally depressed. It is supposed in the case of crushed limbs to be brought about by nervous exhaustion, caused by continuous and severe irritation of peripheral, sensory and sympathetic nerves.

Rogers, in experimenting on frogs that he had shocked by electricity, observed that the spinal cord and muscles were not sensitive to drugs or stimuli, as, for example, strychnin failed in its effect on the spinal cord. The tissues seemed to be unable to react, or the strychnin seemed to fail of passage from the blood to the tissues. These experiments in part explain some of the observations of Crile, namely, that powerful, stimulating remedies fail in their mission to relieve exaggerated shock, and when given in too large doses may result in an absolute toxic effect on the patient. The following observations of Crile, while some of them are contrary to our clinical experience, are worthy of note in this connection. Crile contends that nitroglycerin, strychnia, alcohol and all other stimulants of vasomotor centers tend, like traumatism, to the production of shock.

Where the operative field invades a part rich in blood vessels and hemorrhage is hard to control, the amount of blood lost is often great in quantity, even though we use all the precautions possible by immediately clamping or tying every vessel that spurts. It is after such operations and in collapsed conditions that intravenous infusion and hypodermoclysis accomplish such good results by raising blood pressure, stimulating the endocardium, thus exciting the heart to action, filling up the empty blood vessels and stimulating the anemic brain. The amount of saline infusion should be governed by the amount of blood lost and its effect on the pulse. It is better to stop at two pints, if the pulse is restored, taking the chances of having to repeat it again if required, rather than to bring about pulmonary edema, for Crile found when the infusion amounted to 320 c.c. kilo., the fluid accumulated in the splanchnic area and embarrassed respiration by mechanical fixation of the diaphragm and ribs. We have seen pulmonary edema increased and damage done by using intravenous infusion in a case of albuminuria with suppression of urine.

Crile had the most lasting effect when to his saline infusion he added 1/50,000 adrenalin. He resuscitated animals that had been dead for ten (?) minutes by these infusions, combined with rhythmic pressure on the pericardium and artificial respiration.

We may have delayed shocks after an operation is completed, hence the importance of keeping the patient quiet and comfortable, with the foot of the bed raised, if much blood has been lost. During collapse the best clinical results are obtained medicinally by the hypodermic administration of 1/30 grain of strychnia, combined with 1/60 grain digitalin. If we could foretell, in any given operation, that shock was liable to occur, it would be well to reinforce our patient by giving him either a stiff toddy, ¼ grain of morphia, 2 grains citrate caffein, or a hot cup of coffee an hour or two before operating.

When from any cause serious or profound shock is produced, only the necessary interference to check the hemorrhage and stop the pain should be attempted, and even that should be done without the aid of anesthesia; morphia, under such circumstances, acting better than ether or chloroform. The exception to this rule is when the shock seems to be aggravated by a crushed painful limb; it is better to amputate under the influence of morphin and ether, thus removing the cause of the shock. The blood should be forced into the more vital parts by raising the limbs, if not injured, rather than by bandaging the extremities. Dry heat and mustard with friction to be applied freely, flannel cloths wrung out of hot water and sprinkled with turpentine should be applied over the precordial region. In some of these cases the most powerful stimulation fails to act. When, from either shock or anesthetic, respiration or circulation stops from anemia of the medulla oblongata, the head-down, inverted position, combined with artificial respiration with rhythmic pressure on the heart, affords the best chance for relief. Artificial respiration, with chest compression, not only brings in new oxygen, but expels whatever chloroform or ether vapor remains with the residual air. It is then that artificial respiration, lowering the head, infusion and faradization come to our relief. With one pole of the battery over the phrenic nerve and the other over the diaphragm, we can tide over some cases that otherwise might prove fatal. We should not try to force hot, stimulating drinks down a patient who can not swallow, as fatal strangulation may result, but if deglutition is not impaired, 10-minim doses of the tincture of digitalis dropped on the back of the tongue slows down the fast, weak-acting heart, but its culminative effect should be remembered, and it should not be repeated too often, as cardiac failure might follow overstimulation.

Many times the patient being operated on is not kept warm enough. Moisture from wet towels and dressings are left to be evaporated by the latent heat of the body. During the winter months, in cold climates, at least, the operating room should be kept at 72 F., and with some cases it is best to have the operating table heated by coils of hot water circulating underneath the table. Shock is superinduced by draughts, and at no time during or after an operation should a patient be uncovered except the actual part to be operated on. The patient should be kept warm when going from the operating room to his private bed, which should be well heated before he is moved into it. In all our treatment, to bring about reaction, we should stop short of producing overaction and its sequence, which is secondary hemorrhage. Whenever it becomes necessary to operate on one who is very old it is important to reinforce their vital powers by a tonic course of strychnia a week or more before the operation, as it does much more good in this way than when given on the operating table. Confinement in bed is very damaging to these old people; they ought to be propped up in bed, or removed to a chair just as soon as it is practicable. It is important that operations on old persons be as bloodless as possible.

In these conditions of post-operative shock, do we not, under some circumstances, overtreat the case? Many times, with the heart scarcely beating for the lack of blood stimulation, with respiration sighing and shallow, with patient bathed in cold perspiration, we have seen one hypodermic injection after another containing stimulating poisons given in such quick succession that we may well pause to ask ourselves the question, are we not confusing and overpowering a circulation and respiration almost extinct by the rapid successive administration of such strong drugs as nitroglycerin, strychnia, digitalin, atropin and morphin into a subject already overpowered by a general anesthetic, loss of blood, shock and collapse? Under the excitement of such conditions, proper time very often does not elapse from one dose to another to see what the effect will be. Again, drugs having diametrically opposite effects are often used and stored up in the system. We are not claiming this to be a common practice in well-regulated operating rooms, but I am sure that many of us have witnessed cases in which the postoperative treatment was overdone.

It has always been my idea that, if surgeons would spend more time in getting the patient in proper condition to stand the operation, in having everything in readiness, in having assistants trained in what they are expected to do, and also if the least possible time were consumed in performing the operation, and if all lectures and explanations were suspended until the operation is finished, much less of the first necessary poison, viz., the anesthetic, would be required, and we would have fewer cases *in extremis* to deal with after operations.

THE MECHANISM OF STREPTOCOCCUS INFECTION.*

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[Work aided by a grant from the American Medical Association.]

INTRODUCTION.

Although a great deal of work has been done on the mechanism of streptococcus infection, both with normal and with immunized animals, many points are still left entirely in the dark. In the experiments described in this paper, an attempt is made to throw additional light on some of these points, but on account of the many inherent difficulties, the results which I have achieved by no means exhaust the problem.

Shortly after the publication of his classical paper on phagocytosis in daphnia, Metchnikoff[1] made a study of phagocytosis of streptococci in the human body, in cases of erysipelas. He concluded from his observations that streptococci gain entrance through abrasions of the skin, multiply and set up an inflammation. At the same time there is a gathering of microcytes about the streptococci, and these soon take up the latter and destroy them. Macrocytes also are found in considerable numbers, but they do not take up the streptococci, but have, nevertheless, a phagocytic action, in that they take up and remove dead and disabled microcytes.

In 1895 Denys and Leclef[2] studied the mechanism of immunity in rabbits which had been repeatedly injected with small but gradually increased doses of virulent streptococci. Their conclusions may be briefly stated as follows: Immune rabbit serum is not as good a culture medium for streptococci as normal serum, but it does not possess any marked streptococcidal powers. The cell-free fluid from a leucocytic exudate retards multiplication of virulent streptococci and sometimes kills them. Normal leucocytes in normal serum, and leucocytes from an immune rabbit suspended in normal serum, do not greatly retard multiplication of virulent streptococci. Leucocytes from a normal rabbit, or those from an immune rabbit, suspended in immune rabbit serum rapidly take up and destroy virulent streptococci. The serum has acquired something in the process of immunization which neutralized something in the cocci, by virtue of which they were protected against phagocytosis.

Denys and Marchand[3] showed that there is better phagocytosis of virulent streptococci when inoculated into a suspension of rabbit's leucocytes in normal rabbit serum, to which had been added 1 per cent. of immune horse serum, than when they were inoculated into the same mixture of leucocytes and rabbit serum, with the addition of 1 per cent. of normal horse serum.

Bordet[4] was able to find no protection against streptococci in normal and in immunized rabbits and guinea-pigs, except that due to phagocytosis. If a rabbit was treated with antistreptococcic serum, and later injected with several times the minimum fatal dose of streptococci, the organisms were all taken up by phagocytes and destroyed. In untreated rabbits he also found phagocytosis, but the organisms soon got the upper hand and the rabbit died of streptococcus infection.

Marchand[5] studied phagocytosis of virulent and non-virulent streptococci, and came to the conclusion that the failure on the part of the leucocytes to take up virulent streptococci depends on a physical property of the organisms and not on a secretion. Tchistovitch[6] injected rabbits intravenously with fatal doses of a highly virulent streptococcus, killed the animals in one-fourth to six hours, and examined the organs for evidence of phagocytosis. He was always able to find some phagocytosis in the lungs and in the liver of these animals, and concluded that this phagocytosis of virulent streptococci may be due to the fact that every culture contains some cocci which are less resistant than others, and that those are the only ones which are taken up by the phagocytes.

Simon[7] found very little evidence of phagocytosis *in vitro*, when rabbit's leucocytic exudate was inoculated with a non-virulent streptococcus. The washed leucocytes suspended in salt solution, and also the cell-free exudate, killed non-virulent streptococci, but not the virulent organisms. Leucocytic exudate mixed with rabbit serum had no effect on non-virulent streptococci. He was unable to confirm the view advanced by Bordet and others that a rabbit which is injected with streptococci into a pleural cavity containing leucocytic exudate can stand a larger dose than can a rabbit of the same size which is injected in the normal pleura. The pleural exudate was produced by the injection of aleuronat suspension forty-eight hours previously. These results are quite contradictory to those of other investigators, and it was, therefore, thought desirable to repeat these experiments with leucocytes.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Virchow's Archiv, 1887, vol. cvii, p. 209.

[2] La Cellule, 1895, vol. xi, p. 177.

[3] Quoted from Denys, Centralbl. f. Bact., 1898, vol. xxiv, p. 685.

[4] Annales de l'Institut Pasteur, 1896, vol. x, p. 104, and 1897, vol. xi, p. 177.

[5] Archiv de Méd. Exper., 1898, vol. x, p. 253.

[6] Annales de l'Institut Pasteur, 1900, vol. xiv, p. 802.

[7] Centralbl. f. Bakt., 1901, vol. xxix, pp. 81 and 113.

EXPERIMENTS WITH LEUCOCYTIC EXUDATE IN VITRO.

A large Belgian hare was injected in each pleural cavity with 10 c.c. of aleuronat suspension, and bled to death in from eight to ten hours later. About 30 c.c. of thick exudate, containing chiefly polymorphonuclear leucocytes, was obtained and used in the experiment which is tabulated in Table 1. No sodium oxalate solution was added to this exudate, as this salt is strongly streptococcidal, but the coagulation of the exudate was prevented by occasional agitation of the tubes during the first hour. The contents of each tube were 2 c.c., which were inoculated with three loopfuls of a twenty-four-hour broth streptococcus culture, and three loopfuls were plated at intervals. Tube 8 differs from Tube 7, in that it contains the washed leucocytes which had been centrifugated out of 2 c.c. of the exudate, suspended in rabbit serum, whereas Tube 7 contained a mixture of 1 c.c. of the entire exudate +1 c.c. of serum. The fluid of the exudate in Tube 8 was removed to show that the effect of these mixtures is not due entirely to the liquid portion of the exudate, but in a large measure to the leucocytes. The table shows that non-virulent streptococci are destroyed by the leucocytic exudate, by mixtures of leucocytes and serum, by leucocytes and defibrinated blood, and by the cell-free exudate. Defibrinated blood and serum alone, the heated exudate and a suspension of leucocytes in salt solution have little or no effect on these organisms. The virulent streptococcus is not destroyed by the leucocytic exudate. Smears made from these tubes in from one to two hours showed evidence of phagocytosis, but this is most easily demonstrated in tubes containing suspensions of leucocytes in serum. Table 2 shows the same experiment as that shown in Table 1, except that guinea-pig's leucocytes and blood were used. With these leucocytes the eighteen-hour plates are often sterile, or nearly so, while it is only occasionally that they are sterile when rabbit's leucocytes are used.

TABLE 1.—Showing the effect of rabbit's leucocytic exudate and mixtures of exudate and body fluids on streptococci.

Streptococci.		Immediately.	3 hrs.	18 hrs.
300	Leucocytic exudate	4600	0	10000
300	Exudate 58° for half hour	3250	8000	Many
300	Cell-free exudate	4800	1400	3000
300	Defibrinated blood	4800	4700	Many
300	Blood 1 c.c. + exudate 1 c.c.	4000	750	1500
300	Rabbit serum	4200	4200	Many
300	Serum 1 c.c. + exudate 1 c.c.	5200	1100	Many
300	Leucocytes in serum	5000	900	Many
300	Leucocytes in NaCl sol	4900	5000	Many
324	Leucocytic exudate	420	11	Many
324	Defibrinated blood	430	7000	Many
324	Blood 1 c.c. + exudate 1 c.c.	750	540	Many
324	Rabbit serum	552	6500	14000
324	Serum 1 c.c. + exudate 1 c.c.	320	1	Many
B104	Leucocytic exudate	3500	3600	Many
270	Leucocytic exudate	1700	2	Many

Sources of streptococci: Nos. 300 and 324 from the heart's blood of scarlet fever patients, postmortem. No. B104 from an abscess in a guinea-pig which had been injected with a fungus. This organism has been passed through 78 rabbits and is very virulent for both rabbits and guinea-pigs.

TABLE 2.—Showing the effect of guinea-pig's leucocytic exudate and mixtures of exudate and body fluids on streptococci.

Streptococci.		Immediately.	3 hrs.	18 hrs.
300	Leucocytic exudate	6500	70	170
A	Leucocytic exudate	650	600	Many
B104	Leucocytic exudate	8000	10000	Many
300	Cell-free exudate	5500	800	6000
B104	Cell-free exudate	8000	10000	Many
300	Defibrinated blood	6000	5000	Many
300	Defibrinated blood + leucocytes	6800	240	72
300	Serum	6000	6000	Many
300	Serum + leucocytes	6000	2000	Many

Streptococcus No. 300 is not virulent for guinea-pigs. Nos. B104 and A are virulent. No. A was isolated from a peritonsillar abscess following an attack of follicular tonsillitis and was used in this experiment in the first generation on artificial media.

EXPERIMENTS WITH LEUCOCYTIC EXUDATE IN VIVO.

In order to determine whether a rabbit is more resistant when injected in a pleura containing leucocytic exudate than when injected in the normal pleura, the following experiments were carried out:

EXPERIMENT A.—A gray rabbit weighing 1,450 grams was injected into the right pleura with 7 c.c. of aleuronat suspension. Fifteen hours later 2 c.c. of a 40-hour culture of a virulent streptococcus were injected into this pleura and also into the right pleura of a normal rabbit weighing 1,500 grams. The normal rabbit was found dead in 18 hours, and the one which had been previously injected with aleuronat died 45 hours later.

EXPERIMENT B.—A gray rabbit weighing 2,100 grams was injected in the right pleura with 6 c.c. of aleuronat suspension. Eighteen hours later 1 c.c. of a 24-hour culture of a virulent streptococcus was injected into this pleura and also into the right pleura of a normal gray rabbit weighing 2,150 grams. The normal rabbit died in about 18 hours, while the aleuronat rabbit died only after 45 hours—21 hours after the death of the control.

The experiment was now varied so that the conditions were the same as in Simon's experiments.

EXPERIMENT C.—A rabbit weighing 1,700 grams was injected in the right pleura with 8 c.c. of aleuronat suspension, and 48 hours later this rabbit and a normal rabbit weighing 1,700 grams were each injected in the right pleura with 1 c.c. of a 30-hour streptococcus culture. In this experiment the aleuronat rabbit died in 24 hours, while the control lived for five days.

EXPERIMENT D.—A rabbit weighing 1,800 grams was injected in the right pleura with 9 c.c. of aleuronat suspension. Forty-eight hours later this rabbit and a normal rabbit weighing 1,800 grams were each injected in the right pleura with 1.5 c.c. of a 24-hour streptococcus culture. The normal rabbit died in 37 hours, while the aleuronat rabbit died in 45 hours—eight hours after the death of the control.

The results of the last two experiments agree fairly well with those obtained by Simon, and we may now ask why they are different from the results of Experiments A and B. Apparently, this difference is due to the fact that in Experiments C and D the inoculation was made some thirty hours later than in Experiments A and B. That this is the correct explanation is indicated by the following experiment:

EXPERIMENT E.—A rabbit weighing 2,300 grams was injected in the right pleura with 9 c.c. of aleuronat suspension. Forty-eight hours after this injection the rabbit was bled to death, and on opening the pleural cavity it was found to contain no leucocytic exudate.

Had this rabbit been inoculated in the right pleura forty-eight hours after the injection of the aleuronat suspension, the inoculation would not have been made into leucocytic exudate That being the case we would not expect that this rabbit could stand a larger dose of streptococcus than a normal rabbit. In Simon's experiments, however, the inoculations into the pleural cavity were made forty-eight hours after the injection of aleuronat, and this is probably the reason why he did not find these rabbits more resistant than normal rabbits. Had he made his inoculations within twenty-four hours after the injection of aleuronat his results would very probably have been different.

EXPERIMENTS WITH ORGAN CELLS.

It seems quite reasonable to suppose that the organ cells might play an important part in the protection of the body against invasion by streptococci, and with this point in mind the following experiment was carried out:

Experiment.—Two guinea-pigs, A and B, were bled to death and the blood collected under aseptic precautions. The organs were now carefully removed from the body, placed in sterile glass dishes and rubbed up; A with guinea-pig's serum, and B with defibrinated guinea-pig's blood. The organs and blood were not allowed to become cold. The suspensions of organ cells were now introduced into small test tubes, inoculated with two loopfuls of a 24-hour broth culture of a non-virulent streptococcus, and two loopfuls were plated at intervals. The colonies that developed in each plate were carefully estimated and the results are shown in Table 3. In no instance did the suspension of organ cells have an inhibitive effect on the multiplication of the streptococci, but on the contrary the organisms multiplied more rapidly in these suspensions than in either the serum or the defibrinated blood alone. If, however, bone marrow was added to the defibrinated blood or serum, the number of streptococci in these tubes was greatly diminished during the first three to five hours.

Table 3.—Showing the effect of suspensions of organ cells of guinea-pigs on streptococci.

Streptococcus.		Immediately.	3 hrs.	18 hrs.
B104†	Defibrinated blood	1800	1600	1500
B104	Blood + muscle	2000	8000	Many
B104	Blood + spleen	1900	Many	Many
B104	Blood + liver	1800	Many	Many
B104	Blood + kidney	1900	Many	Many
B104	Blood + adrenal	1500	Many	Many
B104	Blood + lymph gland	1500	6000	Many
300	Blood + bone marrow	2500	1000	Many
300	Serum	3800	3750	6000
300	Serum + leucocytes	2700	1800	1500
300	Serum + spleen	2800	5000	Many
300	Serum + liver	2000	12000	Many
300	Serum + kidney	2400	12000	Many
	Control liver + serum	0	3	9
	Control spleen + serum	0	0	0

†The strain of streptococcus B104 used in this experiment has not been passed through rabbits, and has lost its virulence.

These results agree with those found by Bail and Petterson[8] in their study of the mechanism of anthrax immunity in chickens, and show that suspensions of organ cells from the guinea-pig possess no streptococcidal power except the suspensions of bone marrow. Suspensions of marrow cells in defibrinated blood or serum kill large numbers of avirulent streptococci, but that is not the case with suspensions in salt solution. These results have also been obtained with suspensions of rabbit's bone marrow.

PHAGOCYTOSIS IN HUMAN INFECTIONS.

During the course of this work I had an opportunity to study a case of acute purulent rhinitis, in the discharge of which streptococci were found in pure culture.

Patient.—A man 27 years of age. During the first two days the discharge was clear and watery and contained very many streptococci in short chains and in diplococci. Figure 1 shows a photomicrograph of a smear made on the second day. There were only a few leucocytes, and those did not contain any streptococci. On the fourth day the discharge had become thick and purulent, and smears made at that time presented an entirely different picture. There were no free streptococci, but very many leucocytes, some of which were loaded with streptococci. Figure 2 shows a photomicrograph of such a preparation made on the fourth day. The purulent discharge continued for about a week, and during this time it was easy to find leucocytes in the smears which contained large numbers of streptococci. The streptococci finally disappeared, and the patient made a complete recovery.

In this case of streptococcus infection, phagocytosis of the organisms by the leucocytes seemed to be an important factor in combating the infection. In the smears made on the fourth day no free streptococci could be found, although diligent search was made for them. Plates made with a small quantity of discharge, which was obtained high up in the nares by means of a sterile cotton swab, contained, however, many colonies of streptococci after twenty-four hours' incubation. The fact that many colonies developed in the plates, although no free streptococci could be found in the smears, seems to indicate that the organisms were not dead when they were taken up by the phagocytes, but were taken up alive. It is possible, however, that there were free streptococci in this purulent discharge, even though they were not found in the smears.

PHAGOCYTOSIS OF LIVING STREPTOCOCCI IN VIVO.

The following experiment was, therefore, made to show more conclusively that there is phagocytosis of living streptococci in the animal body:

Experiment.—A guinea-pig was injected in the right pleura with 7 c.c. of aleuronat suspension. Twelve hours later he was injected in this pleura with 2 c.c. of an 18-hour glucose broth culture of a non-virulent streptococcus, and two hours after this injection he was bled to death. Several cubic centimeters of leucocytic exudate were now taken from the right pleura, under aseptic precautions. Smears made with this exudate contained no free streptococci, but many of the leucocytes contained cocci in large numbers.

Figure 3 is a photomicrograph of one of these smears showing streptococci in the body of a leucocyte.

Preparation of Slides.—By means of a sterile, soft cotton swab a small quantity of the exudate was now gently smeared on each of eight agar-covered slides; the slides were incubated in a moist chamber for from four to six hours, stained and examined under the microscope. The preparation of these slides requires the following special technic: Three ordinary clean glass slides and a heavy watch glass are placed in a large Petri dish and sterilized in dry heat. When the Petri dish has cooled sufficiently to be handled the slides are taken out with sterile forceps and hot glucose agar is poured on each to form a uniform thin film. Each slide is immediately replaced in the Petri dish and the agar allowed to solidify. The exudate which contains many streptococci in the bodies of the leucocytes is now gently smeared on these agar films, the watch glass is half filled with sterile water, and the large dish is placed in the incubator for from four to six hours. The water is used to prevent drying of the agar.

Staining.—The slides are now taken out of the Petri dish and dried in a thermostat at 55 C. for from fifteen to twenty minutes, or longer if necessary; fixed in 40 per cent. formalin for four or five minutes, washed in water, stained for only a few seconds with Loeffler's methylene blue solution, again washed in water and dried in the thermostat.

The best stains were obtained when the methylene blue solution was poured over the wet slide, the slide being held so that the stain ran off readily.

The slide is immediately placed in a dish of cold water and gently rinsed in several changes of water. Violent agitation in the water pulls off the film of agar. When the agar is perfectly dry (which requires only about half an hour), a cover-glass is placed on it, either in glycerin or Canada balsam. The slides are now ready to be examined with the oil immersion lens.

Examination.—Examination in various stages shows positively that the streptococci in the leucocytes multiply, burst open the cell and form a small colony surrounding the cell

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8. Centralbl. f. Bakt., 1903, vol. xxxv, p. 102.

which contained them. Figures 4 and 5 are photomicrographs of such preparations at different stages. In Figure 4 the leucocyte has just been burst open and the streptococci are beginning to grow out of it; in Figure 5 a considerable colony has already formed around the ruptured leucocyte. These colonies may be found in all stages, by varying the time of incubation.

The leucocytes do, however, kill streptococci if the conditions are right, as is shown by the following two facts: 1. Organism No. 300 is not virulent for guinea-pigs, and we have seen that the leucocytes take up the cocci alive. The guinea-pig must destroy these organisms somewhere, and we can find no substance in its body that is capable of doing this except the leucocytes and the bone marrow. We have seen in Table 2 that the leucocytes destroy streptococci *in vitro,* and the inference is that they also destroy them *in vivo.* 2. Plates made with three loopfuls of the exudate when taken from the guinea-pig contained 2,540 colonies of streptococci after twenty-four hours' incubation, while plates made with three loopfuls, after the exudate has stood in a test tube in the incubator for six hours, contained only 480 colonies. Evidently some of the streptococci were killed in this tube, but the smears show that all of the organisms are in the leucocytes, hence they must have been killed in the leucocytes.

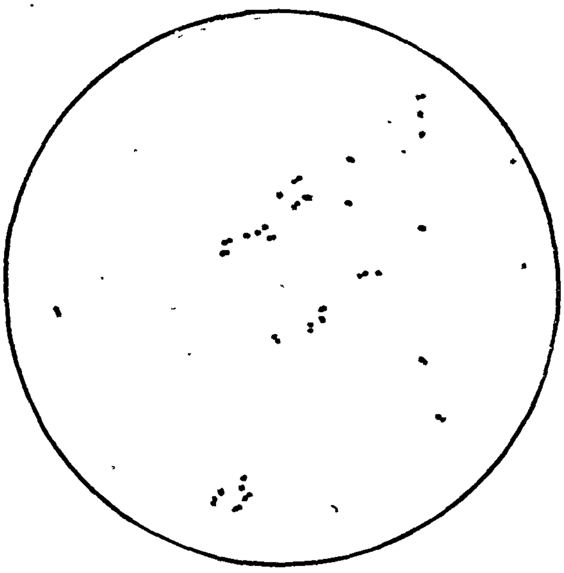

Fig. 1.—Photomicrograph × 1500. Streptococci in nasal discharge on second day of sickness.

THE SO-CALLED STREPTOCOCCUS TOXINS.

The so-called toxin-producing power of streptococci has been studied by a number of investigators.† In 1888 Manfredi and Traversa[9] succeeded in preparing a toxic filtrate from a streptococcus which had been isolated from a case of erysipelas. Four years later Roger[10] prepared a filtrate which killed rabbits in doses of 13 to 20 c.c. per kilogram weight of rabbit. Marmorek[11] got a more powerful toxin by growing a virulent streptococcus in a mixture of bouillon and human serum for three months and filtering. One cubic centimeter of this filtrate killed a large rabbit in three to four days. More recently he[12] recommends a special culture medium containing glycocol and leucin, in which he claims to have obtained powerful toxins. Marmier[13] got a powerful toxin by growing streptococci in peptone solution. He precipitated the toxin from the filtered cultures, and found that the precipitate killed rabbits in doses of 40 mg. Schenk[14] extracted the livers of rabbits which had died of streptococcus infection, with salt solution and filtered the extract. These filtrates and also those of a broth culture of his organism were toxic for mice. Homén and Laitinen[15] prepared a toxin from broth cultures by precipitation with ammonium sulphate. These cultures varied in age from three to thirty days, and apparently were not filtered, hence it is doubtful whether the precipitates were sterile. Lingelsheim[16] found that some strains of streptococci possess a high toxicogenic power, but that they usually lose that property after being grown on artificial media, even if they are passed through rabbits from time to time. He obtained his most powerful toxin from an organism of medium virulence.

Besredka[17] succeeded in preparing filtrates that are strongly hemolytic for red corpuscles of various animals, by growing a virulent streptococcus in heated rabbit serum for eighteen to twenty-four hours and filtering. His filtrates were not toxic for rabbits, but I have shown[18] that filtrates thus prepared may also be toxic. Simon[19] has pointed out recently that the hemolysin and the toxin are probably two different substances, and this may explain why my results do not agree with those of Besredka.

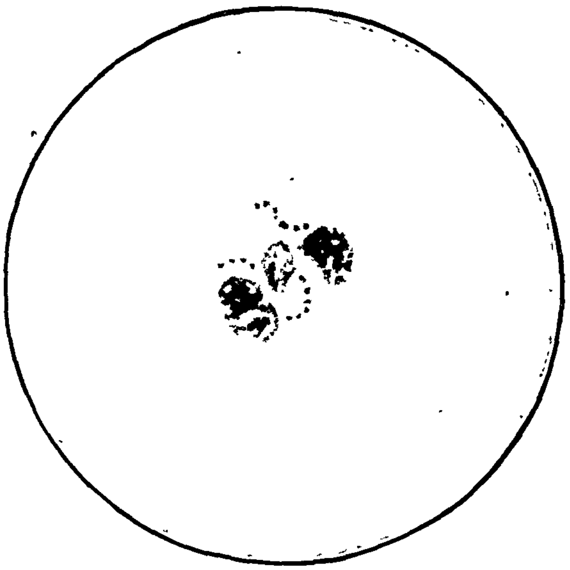

Fig. 2.—Photomicrograph × 1500. Streptococci in a leucocyte from nasal discharge on fourth day of sickness.

Arohnson[20] found that the filtered broth cultures, varying in age from two to fourteen days, possessed only weak toxic powers, even if the organism was highly virulent. Macfadyen and Rowland[21] prepared a highly toxic extract of streptococci by grinding up the organisms when frozen and reduced to a very low temperature by means of liquid air, and exhausting this mass witl salt solution. One-tenth c.c. of this extract killed guinea-pig in six hours when injected intraperitone

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†It should be remembered that it has not yet been shown that any of the so-called streptococcus toxins correspond fully with the dogmatic definition now given of toxin.

[9] Quoted from Lingelsheim, Beit. z. Exp. Ther., No. 1, p. 16.

[10] Rev. de Méd., 1892, vol. xii, p. 944.

[11] Annales de l'Institut Pasteur, 1895, vol. ix, p. 611.

[12] Berliner klin. Woch., 1902, vol. xxxix, p. 253.

[13] Annales de l'Institut Pasteur, 1895, vol. ix, p. 568.

[14] Wien. klin. Woch., 1897, vol. x, p. 937.

[15] Ziegler's Beiträge, 1899, vol. xxv, p. 10.

[16] Beiträge zür Experimentellen Therapie, No. 1, 1899.

[17] Annales de l'Institut Pasteur, 1901, vol. xv, p. 880.

[18] THE JOURNAL A. M. A., 1903, vol. xli, p. 962.

[19] Centralbl. f. Bakt., 1903-4, vol. xxv, pp. 308-440.

[20] Berl. klin. Woch., 1902, vol. xxxix, p. 981.

[21] Centralbl. f. Bakt., 1904, vol. xxxv, p. 415.

HISTOLOGIC APPEARANCES.

On carefully dissecting out the gland and examining it with very low power it is found that the duct after leaving the vagina gradually increases in diameter in the vicinity of the gland. It then divides into secondary ducts, and these in turn divide, forming terminal ducts which drain the secretion from the lobules. The entire gland may be likened to a bunch of grapes, developed more on the one side than on the other. The main duct corresponds to the stem; the secondary and terminal ducts to the branches; and the lobules represent the individual grapes. Figure 3 demonstrates very well the gland as seen on section; *c* and *d* are cross or oblique sections of the secondary ducts and *a* is a well-defined lobule.

The duct near the vagina is lined with many layers of squamous epithelium, as seen in the central portion of Figure 4. As we pass toward the gland, the duct lining is composed of transitional epithelium, still many layers in thickness. In the deeper layers the cells are squamous in type, but in the superficial layer—the one directly in contact with the lumen of the duct—they are of the high cylindrical type. The secondary ducts are likewise lined by transitional epithelium (Fig. 6 at *b*). But the number of layers is usually much less, as seen in Figure 6 between *c* and *d*, and in Figure 4 at *A* and *B*. The terminal ducts may be lined by transitional epithelium, but I have usually found them covered by but a single layer of epithelium. Sometimes the cells are high cylindrical in type, as seen in Figure 6 at *e*. At other times cuboidal, as represented in the four terminal ducts depicted in Figure 5 at *a*. The glands forming the lobules are tubular or slightly racemose, are round or oval on cross section and are lined by one layer of high cylindrical epithelium (Figs. 4, 5 and 6). The cells, if filled with mucus, may be goblet-shaped (Fig. 14). The cell nuclei are small, round or somewhat flattened, stain deeply and are situated at the base of the cell. They bear a very striking resemblance to the cylindrical epithelium of the cervix. Their protoplasm does not, however, take the hematoxylin stain, as is so often noted in cervical epithelium While these small glands which make up the bulk of Bartholin's gland are for the most part confined to the lobules, isolated glands are found here and there opening directly into the main duct or into the secondary ducts, as shown in Figure 4 at *c* and in Figure 6 at *c*.

The elements of Bartholin's gland are held together by a definite connective-tissue framework rich in blood vessels and in non-striped muscle fibers. This tissue is, according to Muller, amply supplied with nerves.

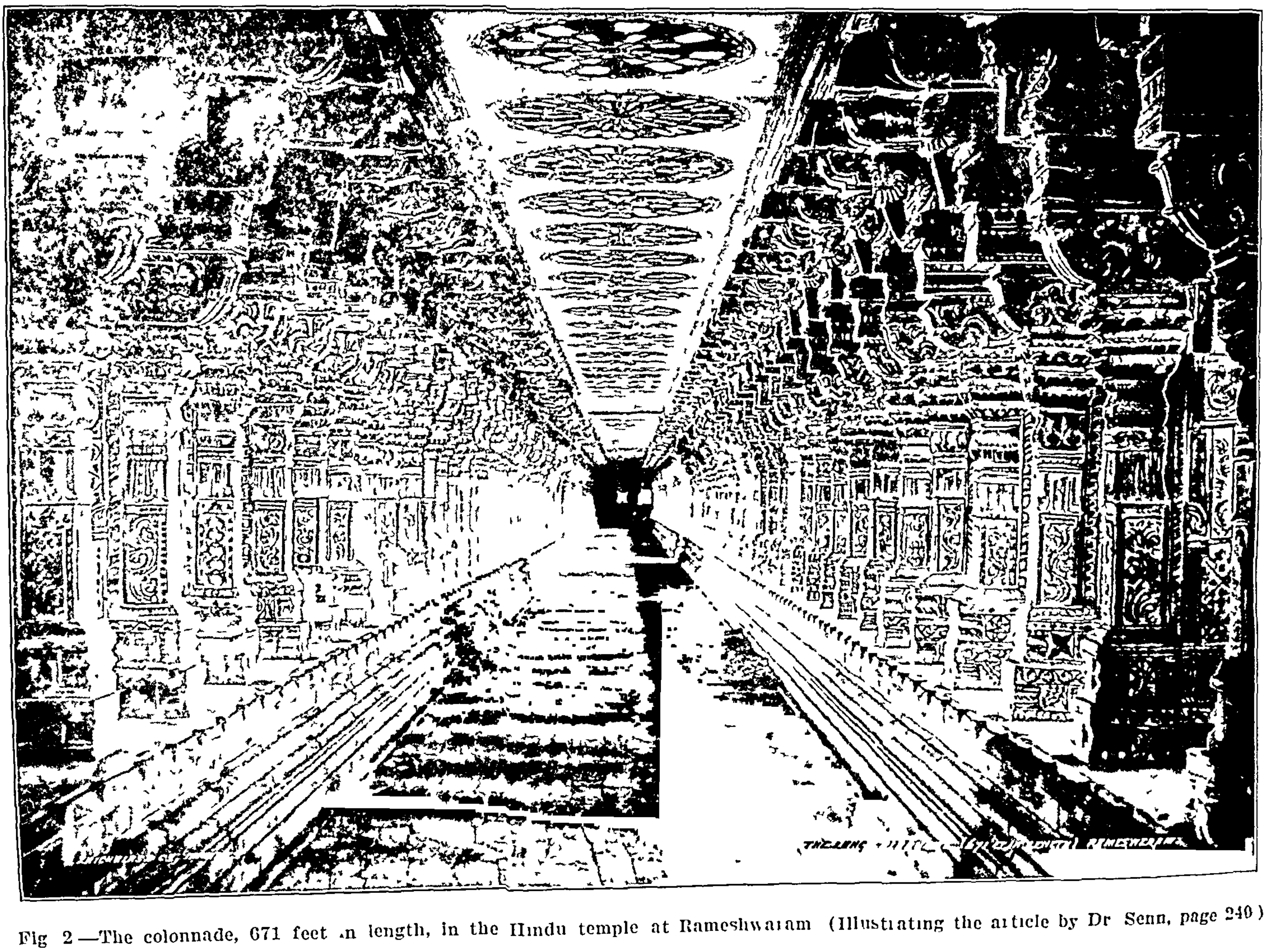

Fig 2—The colonnade, 671 feet in length, in the Hindu temple at Rameshwaram (Illustrating the article by Dr Senn, page 240)

CYSTS OF *BARTHOLIN'S GLAND.*

From the observations of Muller we learn that the duct of Bartholin's gland at its exit is about .5 mm. in diameter and that in the neighborhood of the gland it may be fully 2 mm. in caliber. It is readily seen that
any irritation producing [illegible] s might cause the two
sides o[illegible] duct [illegible] ued together, entirely
preve[illegible] contents. This fre-
quent [illegible] a gonorrheal in-
fectio[illegible] virulent charac-
acter, [illegible] low, but
if the [illegible] reten-

tion of the secretion and a cyst develops. In some cases the secondary ducts are blocked, while the main duct remains patent. We then usually have multiple cysts in the substance of the gland.

CYSTS DUE TO OCCLUSION OF THE MAIN DUCT OF BARTHOLIN'S GLAND.

These cysts are superficial (Fig. 2) and vary from 1 to 4 or 5 cm. in diameter; they are tense and rather thin-walled at their most prominent points (Figs, 8, 9 and 11). The body of the gland is pushed outward into the surrounding adipose tissue, as shown in Figure 2.

The cysts may contain a clear and limpid fluid, which is often viscid, but when hemorrhage has taken place from the cyst wall is yellowish or chocolate-colored.

The inner surface of the cyst is smooth, but here and there small round or sickle-shaped openings are seen in the wall. These are the points at which the secondary and terminal ducts open into the main duct. They have naturally become somewhat dilated, owing to the damming back of the section which can not escape. Sometimes the large secondary ducts become completely disconnected from the main duct, and they in turn give rise to secondary cysts, as seen in Figures 10 and 11.

The character of the cyst lining will, of course, depend on the situation of the point of occlusion. If this is near the vagina the cyst wall will be lined by a varying number of layers of squamous epithelium, while that portion of the cyst originating from the duct near the body of the gland will show a lining of transitional epithelium. At numerous points over the inner cyst surface the lining will consist of only a single layer of cells, of the high cylindrical or cuboidal variety. This is due to the unfolding of the small glands that here and there open along the course of the duct.

CYSTS DEVELOPING FROM OCCLUSION OF THE SECONDARY DUCTS OR THE TERMINAL DUCTS.

These are naturally much less common. They are multiple and very small. Their contents are similar to those of the larger cysts. Their lining is at certain points composed of transitional epithelium and at other points of one layer of cylindrical cells (Fig. 15).

CLINICAL HISTORY OF BARTHOLIN'S CYSTS.

The patient usually gives a more or less definite history of an old inflammation of the vagina which, after an interval of weeks or months, is followed by the development of a swelling low down in one or both vaginal walls. As a rule, this swelling is not very painful, but if bilateral, is frequently associated with discomfort on locomotion. Not infrequently a patient will enter a hospital for a peritoneal operation and a small cyst which has never given the slightest trouble is detected.

TREATMENT.

If the cyst occasions no inconvenience and is not increasing in size it may be left alone. If any operative interference be deemed necessary, it is well to dissect out the entire gland, taking care not to injure the large plexus of veins closely hugging the outer side of the cyst.

DETAILED REPORT OF CASES OF CYSTS OF BARTHOLIN'S GLANDS.

The following is a report of the cysts of Bartholin's glands coming under my observation at the Johns Hopkins Hospital during the ten years, 1893 to 1903. It is, however, no index of the number that exists, as the majority of the patients with this condition are treated in the dispensary and do not come to operation. It will be noted that the youngest patient was 17, the eldest 50. Bartholin's cysts are naturally most common during the child-bearing period. It will also be seen from the cases here tabulated that the smallest cyst was 5 mm. in diameter, the largest 4 cm.

Case 1 (Gyn. Path., 214).—Age 25. Cyst 1.5 cm. in diameter. The cyst wall was composed of fibrous tissue. The cyst was lined by one layer of high cylindrical pale staining epithelium with the nuclei at the base of the cells.

Case 2. (Gyn. Path., 490).—Age 43. Cyst 2.5 cm. in diameter. The walls were very thin and were composed of fibrous tissue; three definite cyst cavities were found. The glands were somewhat dilated, and the cyst lining was composed of one layer of high cylindrical or cuboidal epithelium.

Case 3 (Gyn. Path., 2951).—Age 38. Cyst 2.5 cm. in diameter. The cyst wall was of non-striped muscle and fibrous tissue. Typical Bartholin glands were found in the cyst wall, also sections of secondary ducts. The cyst lining was of columnar or cuboidal epithelium. Where it was two layers in thickness the deeper layer was cuboidal, the other cylindrical. This cyst was evidently due to dilatation of the duct, with secondary unfolding of the glands.

Case 4 (Gyn. Path., 2971).—Age 44. Cyst 5 mm. in diameter. The walls were composed of fibrous tissue. The cyst lining varied in different places, one layer being of cylindrical epithelium, several layers with the superficial cells cylindrical; several layers of squamous epithelium dipping into the stroma, or one layer of cylindrical epithelium.

Case 5 (Gyn. Path., 3133).—Age 50. The cyst wall was composed of fibrous tissue and had glands scattered throughout it. The cyst lining varied; in places there was one layer of epithelium; at other points two layers, with a superficial layer of cylindrical cells; here and there the epithelium was many layers thick.

Case 6 (Gyn. Path., 3352).—Age 35. The cyst was 3x3x2 cm., and very thin walled, translucent; on the inner surface there were several smaller semilunar depressions, evidently where other small cysts had opened into the larger one. The cyst wall was of fibrous tissue, with glands in the wall, and the cyst lining consisted of one or two layers of epithelium, the superficial layer of which was composed of cuboidal cells.

Case 7 (Gyn. Path., 3527).—Cyst 1.5 cm. in diameter; the walls were 1 mm. thick, transparent; there were small round or semilunar openings on the inner surface, indicating remnants of smaller cysts which had opened into the larger one—dilated secondary ducts. The cyst wall was of fibrous tissue, with some non-striped muscle; the greater part of the gland structure was forced to one side—one gland .5 mm. in diameter, one secondary duct 1 mm. The cyst lining was made up of from 2 to 8 layers of transitional epithelium; superficial layer cuboidal. The cyst had evidently developed in the duct.

Case 8 (Gyn. Path., 3594).—Size 2.5 cm. The cyst wall was of fibrous tissue; at one end was a large amount of normal gland tissue; some glands were dilated to 3 or 4 times the natural size. A few secondary dilated ducts were seen. The cyst lining consisted of from 2 to 10 layers of epithelium; the superficial layer of which was cylindrical. This was evidently a cyst of the duct.

Case 9 (Gyn. Path., 3910).—Age 26. Cyst 4 cm. in diameter; the walls thin and translucent, the inner surface smooth, with here and there round or sickle-shaped spaces indicating openings of dilated secondary ducts. The cyst wall was composed of fibrous tissue. The cyst lining consisted of one layer of cuboidal or almost flat cells; at places there were 10 or more layers of swollen, pale staining polyhedral cells. This patient had tubercular peritonitis.

Case 10 (Gyn. Path., 4345).—Age 35. Cyst 1 cm. in diameter. The cyst wall was of fibrous tissue and the cyst lining of from 2 to 10 layers of transitional epithelium; the superficial layer being cylindrical and apparently ciliated.

Case 11 (Gyn. Path., No. 4444).—Cyst 2x1.5 cm., transparent. The cyst wall was of fibrous tissue, containing gland structure, mostly normal, a few glands from three to four times the natural size, with flattened epithelium. The cyst lining was of from two to eight layers of transitional epithelium, the superficial layer being cylindrical. This was a cyst of the duct.

Case 12 (Gyn. Path., 4535).—Age 35. Cyst 4.5x3x3 cm., egg shaped, thin walled, transparent, and showing on the inner surface several small, shallow, sickle-like openings of the dilated secondary ducts. The cyst wall was of fibrous tissue; the gland elements were mostly normal, a few dilated. The cyst lining, in some places, consisted of one layer of high, pale staining cells, side by side, transitional epithelium from 2 to 6 r more layers thick. Unfolding of ducts and glands.

Case 13 (Gyn. Path., 4643).—Age 23. Size 7 mm. The cyst was situated in the left labium and was very hard.

Case 14 (Gyn. Path., 5019).—Age 39. Cyst 3 cm. in diameter. The cyst wall was of fibrous tissue, and the cyst lining was composed of one layer of cylindrical epithelium.

Case 15 (Gyn. Path., 5174).—Age 34. Cyst small. The cyst wall was of fibrous tissue, and the cyst lining was made up of one layer of columnar epithelium, with the nuclei at the base of the cells.

Case 16 (Gyn. Path., 5250).—Age 17. The cyst wall was of fibrous tissue and the cyst lining was composed of several layers of transitional epithelium; at some points there was one layer only.

Case 17 (Gyn. Path., 5509).—Age 25. Cysts very small, multiple. The cyst wall was mostly of gland tissue; there were a few cysts varying from a pin point to 2 mm. in diameter. The cysts were mostly dilated secondary ducts, lined in part by transitional epithelium, and in part by one layer of cylindrical epithelium.

SOME NEW VIEWS RESPECTING THE HOROPTER.*

GEORGE T. STEVENS, Ph.D., M.D.
NEW YORK.

No question in physiologic optics has been more attractive to investigators in that department of research than that of the horopter, yet. although the ablest thinkers have devoted themselves to it with great earnestness, the subject has remained an unsolved enigma. That the doctrines and theories which have been advanced have not solved the problem, no one who has studied it can doubt. The most notable of all these doctrines, that of the great master Helmholtz, is as unsatisfying, if not more unintelligible, than the others. So far as his marvellous array of abstruse mathematical formulæ served to indicate even a single horopter it was an impossible one both in form and position.

If we inquire into the cause of the failure to solve this interesting and, as I believe, this most important problem, we shall find that it is due to a misunderstanding of the two fundamental principles on which any doctrine of horopters must be formed.

These two principles are: 1. The doctrine of corresponding points. 2. The doctrine of the directions of the meridians of the retinas.

The first of these principles has been stated incorrectly by all investigators alike, while the second has been incorrectly affirmed by Helmholtz, and those who have accepted his conclusions drawn simply from his own peculiarities.

We have, then, first of all to examine these two fundamental principles.

The doctrine of corresponding points as stated by Helmholtz, who expresses *the generally accepted view*, is as follows:

1. "On apparent vertical concordant lines, points which are at the same distance from the vertical horizon are concordant."

2. "Points, which in the retinal horizons are at equal distances from a point of fixation, are corresponding points."

Le Conte expresses the law by saying that if a pair of dividers is opened until they are the exact distance apart of the central spots (maculæ) and, while being held level, touch many points, all these points are corresponding points.

Helmholtz proceeds to show that the corresponding points in the two visual fields are also at the same height and separated by the same *angle*. He illustrates his proposition by stereoscopic and other diagrams which are drawn on a flat surface.

It requires but a *moment of consideration to* discover that there is here a marked inconsistency.

If points equally distant in the plane of the visual field, as represented by these flat surfaces, are corresponding, as Helmholtz asserts and proves, then it is impossible that points equally distant in the retinal fields should also be correspondent.

Every proof that Helmholtz brings to sustain his interpretation of the law of corresponding points is positive evidence of the incorrectness of his view and the view which has been universally accepted.

If then, the accepted view is incorrect, what is the correct statement of the law? Accepting the law that points in the plane of the visual field, which are at equal distances and separated by equal angles are corresponding points in the visual field, it is at once apparent that the retinal corresponding points must be variable in distance depending on their relative distances from the points of fixation, the muculæ.

I have elsewhere defined corresponding points of the retinas as "those points in the retinas which answer to proportional degrees of rotations of the eyes about the centers of rotation." They represent, therefore, the relation between the muscular and the retinal senses.

The belief that for retinal spatial locations equal distances in space must be impressed on equally distant points of the retina is an entirely false conception of the functions of that organ.

That some recent observations have appeared to show that estimation of space may be, within very limited extents, made without corresponding movements of the eyes, does not invalidate the proposition that the corresponding points of the retinas represent the relation between the muscular and retinal senses. We shall *presently see that another element enters into the ideas* of space which emphasizes the psychologic side of the question to the modification of the purely mechanical side.

The second fundamental principle in the question of the horopter is the position of the meridians of the retina relative to the cranium.

Helmholtz, examining by a method not fully reliable, found that, as he believed, the vertical *meridians* of the retinas leaned outward, while the horizontal meridians remained exactly horizontal. This does not permit of a discussion of this proposition or the reason for these apparent peculiarities. I have elsewhere shown the probable reason for this error. It is sufficient to say that the conditions of adjustment of the great philosopher's eyes, which he has incidentally revealed, confirm the *belief that his meridians leaned out, but there is no reason* to suppose that his observations on his own horizontal meridians were correct. There is every reason to believe that they were erroneous.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-[illegible] Annual Session, June, 1904.

The leaning out of his vertical meridians did not, as he assumed, represent the typical adjustment of eyes; they were, in fact, rather exaggerated instances of an anomalous state.

The clinoscope has cleared this subject of all mystery and shows that there are various anomalies of the positions of the vertical—and, therefore, of all—meridians just as there are various anomalies of refraction. But the typical position for the vertical meridians is precisely vertical.

Now, assuming the law of corresponding points as I have stated it, and assuming the verticality of the vertical meridians, the necessity for all the involved and almost endless mathematical formulæ of Helmholtz in determining a horopter is eliminated and these intricate formulæ may be replaced by simple problems of plane trigonometry.

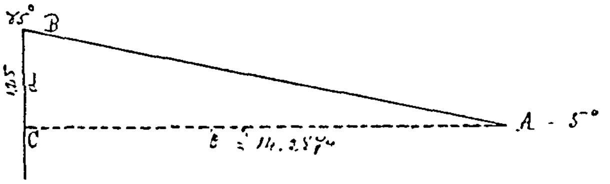

Fig. 1.

The horopters of former investigators have been based on a doctrine of corresponding points of equal measurements on the surface of the retina. The horopter, according to the present reasoning, is based on corresponding angular displacements which vary in the two eyes in proportion as a given object in the visual field is removed to one side of the point of fixation.

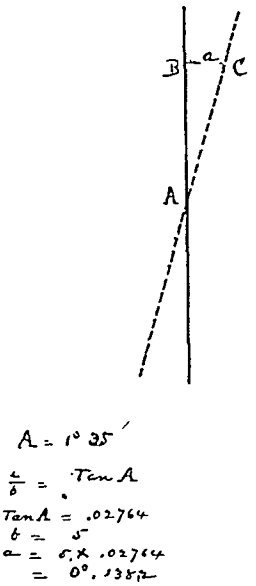

Fig. 2.

With the data at our command derived from these two basal principles, we may then compute a horopter when the eyes are directed straight forward to a point at infinite distance, the head being in the primary position, but for other positions further data are demanded. In convergence, and with depression of the plane of vision, the phenomena arising from the laws of torsions must enter into our computations.

For example, if the two eyes are in convergence and the plane of regard is depressed the horizontal meridians of each eye will tilt downward toward the temporal side, and the upper end of the vertical meridians will tilt out while the lower ends will tilt in. These tiltings in typically adjusted eyes are accurately proportioned to the lateral and ascensional displacements of the eyes. Here permit me to diverge from my topic long enough to allude to the absurd custom of some writers who confound the two absolutely different and independent conditions, torsions and declinations, the first physiologic rotations, the other anomalous adjustments.

Employing all these data we are then in position to determine the general positions of a horopter for different adjustments.

In the case we have already supposed, with the eyes directed to the horizon and at infinite distance, the horopter will be formed in relation with the distant point of fixation and will be a plane surface at a right angle to the plane of regard. If we were to accept only a purely mechanical interpretation of visual phenomena, in this case all objects nearer than the point of fixation would be excluded from the horopter. As a matter of fact there is a subjective horopter, formed on the basis of such unconscious conclusions as enter into the experiment of Dove, where distinctly heteronymous images are seen not only single but correctly located as to distance.

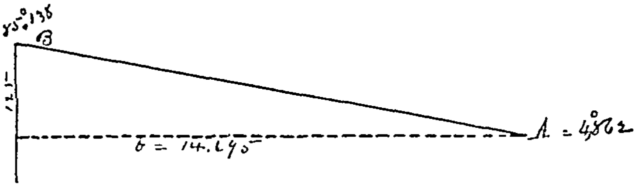

Fig. 3.

The subjective horopter is of the utmost importance, and is governed by fixed laws. The physical horopter, including the points in space actually impressed at corresponding points of the two retinas may be regarded as the skeleton, while the subjective horopter, including points in space which are impressed at such points on the retinas as correspond to a demand for certain exact movements of the eyes necessary in order to place the image at the macula of each eye constitute a mental assemblage of the lineaments of harmonic visual impressions. In a rude way we may compare this subjective horopter to the overtones of a musical sound. The fundamental tone by itself is not pleasing; it is noise. It is the skeleton of the tone. But when combined with its multiplicity of overtones, tones which even the ear of the expert musician fails to differentiate, the musical tone finds its body and affords pleasure to the listener.

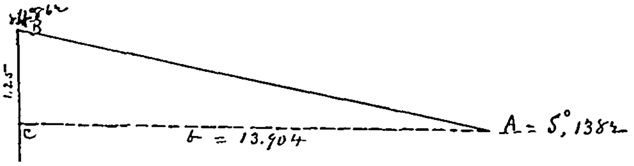

Fig. 4.

In the subjective horopter the consciousness of the required movements takes the place of the actual movement as it does in the Dove experiment.

This doctrine of a subjective horopter does not by any means provide for a confused jumble of space perceptions either in the retinas or in the mind. Every object in the subjective horopter is as much subject to the laws of the angular valuation of muscular movements as are the objects in the physical horopter. Keep in mind the principle that while the image of a given point in space may fall on physically non-corresponding points of the retinas, a subliminal consciousness determines the relative positions of these two non-corresponding points to the maculæ of the two eyes and concludes on the movements which would be demanded to make an actual adjustment for the maculæ were such movements to be executed, and it is this unconscious conclusion, based on accurate data, that places the object, singly, in its appropriate position in the field of view and at the proper distance relative to other objects in that field.

In our horopter, objects less distant than the point of fixation may still be within this subjective horopter, their images being impressed on the two retinas at corresponding points for the lines of incidence on one or other side of the maculæ. Then they will appear, as in the spark in the Dove experiment, as single. The principles controlling the psychic phenomena in that experiment are, in this case, modified to meet the different conditions. Thus, a great number of objects within a fairly wide range may be brought within a perfect horopter.

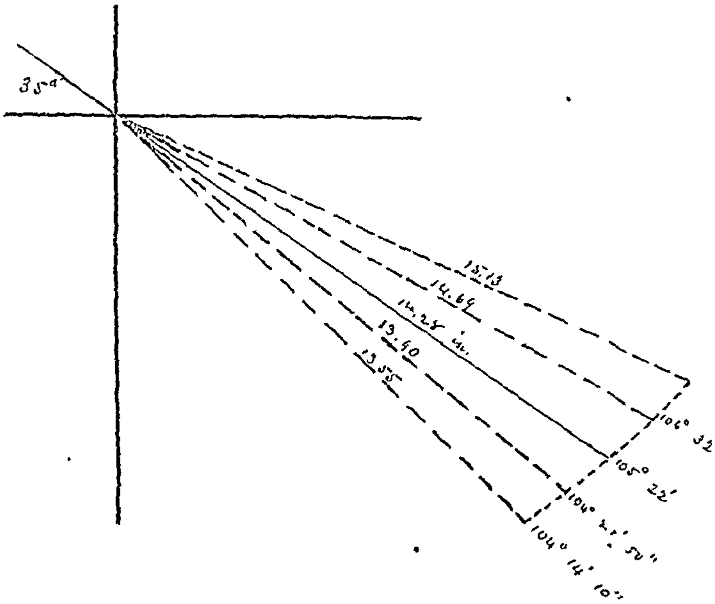

Fig. 5.

If the direction of the gaze is changed while the head remains in the primary position a new horopter must be and is formed.

Let the gaze be directed downward and to a point a few feet distant. The torsional element is so slight that the former calculations will very nearly give the position of the horopter. Should, however, the gaze be fixed on an object, as for example, the page of a book held in the ordinary position of reading, say, with the point of fixation in the median plane, the plane of regard depressed 35 degrees, *and with the lateral deviation of the visual* lines (the convergence) for each eye 5 degrees, while the distance between the nodal points is assumed to be 2½ inches, the problem becomes more complicated. We may determine, from these data, the distance of the horopter and, taking the torsions into consideration, the position of that horopter relative to the plane of regard.

The distance of the point of fixation from the base connecting the two nodal points is determined by the formula, b/a=Cot A, in which A=5° (the lateral angle), a=1.25 (½ the base line) and b the distance required (Fig. 1).

This distance is found to be 14.2875 inches, and at this distance the image of the point of fixation is exactly at the macula of each eye.

Images of points in the horizontal line passing through the point of fixation on the page require special consideration here, and there enters at once an apparent difficulty, for the horizontal meridians of the two retinas are no longer horizontal by the law of torsions. If we consult *Helmholtz's table of torsions we find that* the horizontal (and vertical) meridians have, by a convergence of 5° in each eye and a depression of the gaze of 35°, *been tilted,* the horizontal with the outer part down and the inner part up to the extent of 1°35'.

Is it possible now for the images of points of a horizontal line on the page to be impressed at the horizontal *meridians of the two* retinas, seeing that the former is *exactly horizontal and the latter are tilted?*

It is not only possible, but in fact exactly because of this tilting of the retinal meridians, that the images of points in the horizontal line of the visual field will be impressed precisely at the horizontal meridians of the retinas.

Without *giving space to the* mathematical demonstration of this statement, we pass to inquire in what position will lie a horopteric line running up the page and through the point of fixation.

Let us select a point of 5° above and another 5° below the point of fixation for the determination of the direction of this ascending line.

It has been shown that the point of fixation is distant from the base line 14.2875 inches. Will the distances to the points 5° above and 5° below be the same? Evidently not, for, in order that the image of the upper point on the page shall be impressed at the vertical meridians, the angle of incidence must be less, since owing to the tilting of the vertical meridians they are less widely separated below the maculæ (where the upper image is impressed) than at the maculæ; and because the vertical meridians separate above the maculæ the angle of incidence from the lower point will be greater.

Taking these facts with the given data, we find first the actual extent of the spreading at a point 5° above the macula. This is determined by the formula, a/b=Tan A, in which A=1°35', b=5° and *a* is the distance through which the point B has been moved to C (Fig. 2) by the act of torsion.

The extent of change of position outward of this point then is, by the formula, 0°,1382. Hence, in determining the distance of the upper selected point we must subtract from the lateral angle of 5° the extent of the removal of the point B, or 0°,1382. Also for determination of the distance of the lower selected point, we must add, 0°,1382 to the 5° (Fig. 3). Then by the first formula, b/a=Cot A, in which A=4°,862, or 5°,1382, we obtain the distances 14.695 inches for the upper selected point, and 13.904 inches for the lower. Connecting these through the point of fixation we have a line representing the horopteric line running up the page of the book which will form an angle above the line from the fixation point of 105, which represents also the angle at which the book should be held in order to form a perfect horopter under the conditions given and with typically adjusted eyes (Fig. 4).

If these calculations are carried further, it is found that in the space of 10° up and down the page there is a very slight curve, as is shown by the diagram (Fig 5).

Experimental research has fully confirmed the results of these calculations.

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The principles which have been shown in these calculations may be applied to any other line in the field of what may be called the objective horopter, while the innate conception of the comparative relations of objects not in this objective horopter serves for the formation of the subjective horopter.

A horopter will be formed in relation to every point of fixation and with as strong, if not with a much stronger, impulse than that of accommodation. Difficulties will be overcome when possible, at the expense of much effort and the habitual failure to make such adjustments of the eyes as to form a fairly complete horopter is attended by unpleasant and even serious results.

The horopter then, is not the over-refinement of scientific curiosity. It is a practical, even momentous subject worthy of the most earnest consideration.

In what has been said it has been assumed that the adjustments of the eyes are typical. Unfortunately such adjustments are not only not universal, but anomalous conditions of adjustments are of great frequency.

Such anomalies may serve as slight hindrances in the formation of a horopter or they may absolutely prevent it. In either case, the instinct to conquer the difficulty is present and efforts are made to overcome the obstacles

In order to illustrate this proposition let us take ou supposed case of one reading with a convergence of th eyes of 5° each, with a depression of the plane of rega of 35°. If there is perfect adjustment of the eyes t' horopter is formed as we have shown.

Suppose, however, that the person thus engaged the book has an adjustment of the eyes of 10° of higher than the typical adjustment: such cases are rare, they are, on the contrary, very common. Cons what must occur. This person must depress the of regard, not 35°, but 45°. But with a converge 5° each eye, and a depression of 45° the torsion longer 1°35′, but much more, therefore no horopte be formed if the head of this reader remains in th position as that of the person at first supposed contingencies present themselves, the field of vie remain confused or the reader may advance th 10°. This he prefers to do, and by this means promise is made by which a fairly good horopte tained. The same person advances the head walking or in conversation.

But suppose again that this person has the justed too low by 10°; in such a case no horopte formed at the proper position. It can be done b ing the head backward. We see these people w chins in the air everywhere.

Again, the reader may have anomalous dec and here an obstacle to the formation of the is interposed and the anomalous adjustment ferred to may be and often are complicated w alous declinations.

Are these and other maladjustments simpl n- iences? They are, on the contrary, conditio eat moment.

Let us recall the person with the eyes a too high and who throws the head forward in or orm a horopter. It is in this class that we find th ump- tive. It is no accidental coincidence. The ptive is, in almost all instances, a person who has e mal- position of the air passages induced by th omatic efforts to form the horopter, restricted the ation of air in the upper bronchi and has thereby d a hospitable welcome to the bacillus of consump I speak from experience when I say that if befo e ravages of the parasite have become too extensive pose of the

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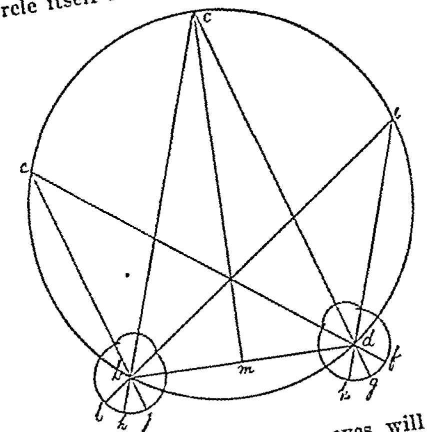
DISCUSSION.

AGE, Nashville, Tenn.—I will be able to prove, is illustration, that corresponding retinal points ilarly related to the two maculas, not by linear but in degrees of arc. All are agreed that with ons the macula of one eye corresponds with the he other eye. I had thought that we all likewise t Helmholtz was right when he taught that all other ding retinal points bear a similar relationship to las. If Helmholtz had correctly constructed his hor- would have had at hand a mathematical proof of the ness of his statement. The true horopter, the isogonal or the monoscopter, is constructed through the point of and through the centers of rotation of the two eyes. three points, as shown in the illustration, are c, b and d the circle itself is c-a-b-d-c. Every point on this circle



capable of throwing light into the two eyes, will be seen singly by the two eyes, for the images will fall on retinal points that correspond. In the illustration the visual axes h-c and g-c and the indirect visual lines j-a, f-a, l-e and k-e all lie in the plane of the circle a-b-d-e-c. It is evident that this plane prolonged backward would include the horizontal retinal meridian of each eye. The arc l-j is a part of the one horizontal retinal meridian and the arc k-f is a part of the other horizontal retinal meridian. The macula in one eye is at h and in the other eye is at g. The macula h corresponds with macula g,

used.

The principles which have been shown in these calculations may be applied to any other line in the field of what may be called the objective horopter, while the innate conception of the comparative relations of objects not in this objective horopter serves for the formation of the subjective horopter.

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acid	10.	4.	2.	1.756
which our c acid+	11.	5.	.5	2.511
the setting acid	20.	5.	1.	2.862
acid	10.	5.	1.	2.322
at least ho acid	5.	5.8	.2	1.646
10 acid	20.	15.	1.	3.074
no acid	15.	10.	1.5	2.886
no acid+	17.	7.	1.5	2.74

DR. G.
by mean es, with hemoglobin percentage and
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	Poly-nuclears.	Large Mono-nuclears.	Trans-itionals.	Small Mono-nuclears.	Eosino-philes.	Mast Cells.
corre 10+	31.2	7.9	37.	23.3	0	0
00	29.4	6.3	7.	51.8	3.1	0.3
the 00	73.5	1.3	9.4	17.1	3.2	0
opt 95	30.5	6.6	12.	40.	12.	0
100	83.5	2.1	1,2	7.1	.7	0
cor 100+	41.5	2.9	7.9	24.7	22.9	0
cir 100	73.8	6.4	2.2	16.7	.8	0
100+	34.4	1.9	9.	52.3	2.4	0
fi 100	50.7	7.4	5.1	36.8	0	0
T 100	34.9	8.8	3.3	7.2	7.2	0
95	50.	5.2	6.9	36.3	1.6	0
100	30.9	10.2	9.2	45.3	4.4	0
100+	39.7	9.5	5.	44.9	.9	0
100	26.5	9.1	6.5	57.4	.5	0
3 100	44.8	5.3	6.9	40.9	1.9	0
6 100+	30.	5.6	6.9	52.8	3.8	.9
1 100	65.3	6.1	8.	19.5	.5	.3
.2 100+	51.9	6.6	5.	33.5	4.	0
44 95	69.4	6.9	5.6	17.8	0.	.3
77 100	38.1	6.3	9.3	43.9	3.3	0
22 100	62.5	4.2	8.8	24.3	.2	0
510 95	38.7	5.2	9.2	44.2	2.7	0
,210 100	40.	5.	8.8	45 7	.4	0
100+	40.3	3.6	8.9	47.	.2	0
100+	42.3	4.2	6.9	46.5	0.	0
100	23.2	7.2	6.2	51.4	12.	0
95	61.3	2.4	9.2	25.8	.6	0
100	49.9	4.4	5.2	31.1	9.4	0
100	58.5	5.5	7.8	37.9	.3	0
95	30.	5.2	6.8	53.	5.	0
100	56.4	4.7	7.	31.	.9	0
100	53.6	5.8	4.5	24.	12.	0

A stained specimen from the same subject, no matter how careful the technic employed, invariably failed to show anything.

But little was learned regarding the mode of conveyance of the infection owing to the comparative rarity of the anopheles we were compelled to make use of various species of the culex:[9] *C. consobrinus* (Desv.) *C. stimulans* (Walk.), *C. tarsalis* (Coq.), and *C. tæniorhynchus*, the *Conchyliastes posticus* (Wied.) and the *Stegomyia fasciata*.

Young but well-grown insects of the above genera were taken from the breeding jars and allowed to feed on dengue patients. Each group was then confined in a separate cage for periods of time varying from five to fourteen days, then taken out and carefully dissected on a glass slide.

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[9] Howard's classification of species is used.

The stomachs and salivary glands were then examined, both directly and after being treated with a solution of sodium chlorid and various simple stains. No bacteria, piroplasma or zygote forms were found.

The inoculation experiments were unsatisfactory and open to criticism, for the volunteer subjects were not only exposed to the bites of other mosquitoes at any time, but they were also brought into almost daily contact with dengue cases.

Case 1.—Bitten by *Culex tarsalis* and *Culex consobrinus* that had been allowed to feed on a 4-day dengue patient 10 days previously. No fever appeared in 14 days.

Case 2.—The experiment was repeated with similar virgin insects that had fed on first, second, third and fifth day patients and that had then been allowed to remain in isolation for from 8 to 14 days. The man bitten by the fifth-day mosquito was taken down with typical dengue 6 days later.

Case 3.—Bitten by a similarly infected stegomyia which had been isolated 14 days previously. Patient, fourth day. An attack of dengue followed, but not until two full weeks had elapsed.

Case 4.—The same procedure was carried out with a young *Culex stimulans* which had been infected 11 days prior to the experiment from a 3-day case. No infection resulted.

Other sources of a possible origin for the epidemic were investigated. Scheube[10] and Clayton[11] have fully overed the essential meteorologic factors in a few brief hrases: high temperature, moisture, low levels, lack of air space, dirt and overcrowding.

So many cases had catarrhal symptoms of the respiratory tract (bronchitis, pharyngitis, tonsillitis and coryza) that it seemed to be more than a coincidence and strongly suggested the epidemic fevers of overcrowding so frequently seen on shipboard.

The striking resemblance to influenza is also seen in the leucopenia and the selective action of the toxin on the nervous system. Many who did not complain of pain or soreness in the throat had marked congestion, with white patches, or even ulcerated areas, of the pharyngeal mucous membrane, and the peculiar putrefactive odor observed in cases of epidemic catarrh was characteristic of these cases also.

Swabs from eleven throat examined simply by
rolling on a slide ng, staining with
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The especially on blood serum and blood-
onnec the blood, enlarged glands and
ormul mplicated cases.

The appended table of urine examinations shows decided increase in phosphates. They often appeared as a heavy cloud in freshly voided specimens. No experiments were made at the time to see if clear urine would have resulted from the previous internal administration of acids. The amount of urine passed in twenty-four hours was decreased. Albumin was hardly more than a trace when present. Two cases in which it appeared were atypical ones in the early part of the epidemic.

The estimation of phosphates, sulphates and chlorids was made by the use of the centrifuge. The urea was measured by the modified Davy's method and is open to criticism, as the low percentages of the first group were probably due to lime employed not being so good as that obtained later.

The urine in 122 cases of dengue gave albumin in six instances, about 4.9 per cent. In 41 cases of malaria it was found five times, or 12.2 per cent.

Our conclusions are as follows:

1. Dengue is one of the few fevers in which a leucopenia persists from the first.
2. Blood examinations are of great value in differentiating between malaria and dengue. Even though no parasites be found, a slight leucocytosis with decided increase in the percentage of large mononuclears and transitionals is indicative of the former, while a leucopenia, with a normal differential leucocytic count or varying degrees of a small mononuclear lymphocytosis and a marked eosinophilia late in the disease, is characteristic of the latter.
3. Albuminuria is seldom seen in an ordinary attack of dengue, and then only in small amounts. The exact opposite is true of yellow fever.
4. The period of convalescence in dengue is almost invariably ushered in by a pronounced small mononuclear lymphocytosis which persists for several days.
5. It is suggested that the causative agent is a small diplococcus or a delicate bipolar staining bacillus closely resembling Pfeiffer's organism. It is probably transmitted by the respiratory tract, and its virulence is much increased by the presence of the essential meteorologic factors and by overcrowding.

Clinical Report.

BILATERAL FACIAL PARALYSIS,

WITH SENSORY AND REFLEX DEFECTS, POSSIBLY DUE TO LA GRIPPE.*

F. W. LANGDON, M.D.
CINCINNATI, OHIO.

This case was referred to me by Dr. J. C. Oliver of Cincinnati, with request for examination and opinion.

Patient.—The subject of the conditions here reported was a teacher, 51 years of age, married, and the father of three healthy children, aged, respectively, 20, 18, 11.

I saw him at the Presbyterian Hospital, Cincinnati, in March, 1904. He was about 5 feet 10 inches in height, well developed, fairly nourished, of dark complexion and hair. Not evidently anemic. Family and personal history good.

Present Illness.—His chief complaint was of headache, which was located in the occipital and both mastoid regions; it was dull in character and had persisted since its onset, five weeks before. He also complained of inability to close either eye, which was evident.

The onset of his trouble he attributed to an attack of alleged la grippe, five weeks previous, manifested by sneezing, chilliness and malaise. He kept at his work, however, for two weeks, then took to his bed for about two weeks. There was no facial or other paralysis up to this time. He then went on a journey of 50 miles by rail, and the next day noted that he could not close his right eye. Three days later there was inability to close his left eye.

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* Read in the Section on Nervous and Mental Diseases of the Medical Association, at the Fifty-fifth Annual Session,

Examination.—Three days after this he came under my observation and presented the following conditions: Patient in bed. Complete paralysis of both facials, upper and lower divisions, inability to close either eyelid. The eyeballs rolled up and outward when he attempted to close the lids. He could not wrinkle forehead, frown or smile. The lower lip drooped and could not be approximated to the upper, giving to the face an idiotic expression strangely at variance with the intelligence of the patient as manifested in his conversation. He could protrude his tongue well and move it in all directions but could not roll it up to form a longitudinal gutter: an interesting confirmation of the supposition that the tongue is supplied in part by the facial as well as largely by the hypoglossal.

His speech was blurred, owing to the defective lip movements, with some difficulty in swallowing, especially liquids.

As regards the other cranial nerves: The ocular movements and pupillary reactions were good. The masseters and temporals acted well. The mouth felt to him unduly dry

Hearing was defective, watch tick heard at one inch (This, he states, is an old defect.) He hears voices well He could open his mouth forcibly against resistance. There was some tenderness on pressure in front of both mastoid processes

Motor power in the trunk and extremities was good Grasp, right, 105; left, 90 (normal). No evident muscular tremor or wasting. Sensation to touch, pain and temperature impressions were good.

Reflexes: The knee-jerk, March 7, was absolutely absent on both sides, even to re-enforcement. Plantar reflexes present and active, flexor in type. Visceral reflexes were normal. Vasomotor and trophic: There was free sweating of both legs from the knees down, without obvious cause.

Subsequent History.—Three days later, March 10, he came for further examination. He walked well but felt weak.

Pulse 72, of fair quality and volume. Heart clear, Grasp, right, 100; left, 95. Legs still sweating excessively

Face still paralyzed, both sides, upper and lower divisions.

Taste absent on right side to salt, sweet and bitter. Present on left side, but dulled and uncertain The knee-jerks had returned and were equal, but considerably reduced.

Four days later, March 14, he walked to my office, nine blocks; said he felt a little confused in his head, but did not indicate it in thought or action. Pulse 72, fair tension.

He could raise the right eyebrow slightly and draw the right angle of mouth slightly upwards. He could not close the eyes completely. Could not taste sweet on right or left sides of tongue. Calls bitter "sour" and salt "sour" on right side. Speech was better and food and liquids were managed with little difficulty.

Treatment.—The first electrical tests were made at this time. To faradism all facial muscles responded, very sluggishly. To galvanism, less sluggishly, but not quickly. Kathodal contraction was greater than the anodal contraction.

The knee-jerks were present, equal, and stronger than four days before, but not fully normal. At this period the patient decided that his interests demanded his return home.

Addendum.—A letter from the patient, dated August 12, 1904, states: "My recovery has been nearly complete, though when very tired can notice my eyes are not fully natural. I took full charge of my business May 1, and have had no interruptions from ill-health."

DISCUSSION.

DR. T. H. WEISENBURG, Philadelphia, emphasized the fact that bilateral facial palsy is rare. He recently saw three such cases in Dr. Spiller's service, in the Polyclinic Hospital. An interesting report of the etiology was made by Sarbo of a case of facial diplegia, where the patient's father, mother and brother had the same disease. Sarbo inclined to the view that in these cases there was a congenital narrowing of the fallopian canal, this acting as a predisposing cause, because of the interference with the blood supply of the facial nerve; the exciting cause was probably an infection, as "taking cold."

DR. HUGH T. PATRICK, Chicago, mentioned the case of a child he saw some months ago with complete double facial paralysis. The electric examination did not show the typical reaction of degeneration, so he was inclined to think it was a tumor, but the subsequent course of the case led him to believe that it could not be a tumor, because the child has not grown worse, being, if anything, a little better. Although he thinks syphilis could be excluded from the case, he put the child on antisyphilitic treatment with no beneficial result. He has come to the belief that the case is probably a very peculiar one of myasthenia gravis. The eye muscles are not involved and the muscles of the extremities are not involved to any great extent. There is simply general weakness, lassitude, ready fatigue and this bilateral facial paralysis. He knows of no other explanation that is adequate, and he does not think that this one is quite adequate.

DR. F. E. COULTER, Omaha, Neb., recently had a unilateral case, of similar origin, occurring in a physician. The knee-jerks became absent, and there was a great deal of sweating. Both plantar reflexes were flexor in type and there was a very marked toxic state with the paralysis that accompanied the infection. When this physician had la grippe he became exhausted, with soreness and aching all over the body. He attempted, as physicians will, to do his work, and one day's driving was quite sufficient to bring on this undesirable result, Bell's paralysis. We can not yet explain why certain nerve trunks are picked out as the seat of infection by certain micro-organisms and others apparently exactly similar in structure, so far as we know, go untouched, but this is certainly the case.

DR. ALBERT E. STERNE, Indianapolis, said that he regretted that Dr. Langdon failed to test the Achilles tap in reference to the patellar reflexes; it would be interesting to know if there was any disturbance of that reflex. Dr. Sterne mentioned two cases; one of them has been referred to in a written article but the other has not been published. The first was the case of a man who had been thrown from a wagon twenty years previously in Portland, Oregon, landing on the back of the head a little to the left side. At that time he was said, erroneously, to have sustained no fracture. However, he lost the hearing in the left ear and became paralyzed on the left half of the face and left external rectus; there was loss of sensation on the right half of the body completely. Twenty years afterward, under systematic, careful treatment, this man recovered to a great degree the use of the facial muscles on the left side; his hearing remained lost and sensations on the right half of the body became almost normal twenty years after the occurrence of the lesion. The other case was unique, and Dr. Sterne has never seen anything of the kind published. A man from Seattle, Washington, had gone to Saratoga to attend a postal convention and was on his way to visit a town in Indiana, when he became stricken with symptoms exactly similar to those we see in poliomyelitis. The question arises whether in this case it was poliomyelitis, or whether it was a peripheral lesion. The man was completely and absolutely paralyzed in every portion of the body; both arms, both legs and both halves of the face completely paralyzed, and all the symptoms seemed to be those of poliomyelitis. Later there was wasting of the muscles, which were absolutely paralyzed, and reaction of degeneration, which still exists in a large part of the trunk muscles and both halves of the face, but he can use his arms somewhat, very much as in cases of regeneration following poliomyelitis. Dr. Sterne has been in doubt as to whether he should make the diagnosis of involvement of the anterior horn. Whether it was due to such involvement or to a peripheral lesion, it was the most widespread paralysis he has ever seen, either in private practice or in the hospital.

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SATURDAY, JANUARY 21, 1905.

PUBLIC CARE OF THE INSANE PENDING COMMITMENT.

Some months ago, in one of the largest cities of the country, a young foreigner became suddenly insane at his boarding-house. He was hurriedly sent to the nearest police station in a patrol wagon, locked up as a prisoner for a day or so, growing constantly more maniacal, then sent in the patrol wagon again to another police station, where the city physician would find it more convenient to examine him. By the time he arrived at the second station he was in a state of intense maniacal excitement. After a struggle with half a dozen policemen, he was finally overpowered and thrust into a restraint chair, where he died within half an hour, without ever having been seen by a physician.

At about the same time in the same city a foreigner, equally obscure, became insane and shot at his roommate. He was taken at once to a police station in a patrol wagon, kept there for two days, then taken to another station more convenient for the city physician to visit, where he was kept another day, and finally was seen by the physician, who then ordered him sent to the detention hospital.

These incidents—illustrating the unmedical treatment which insane suspects frequently undergo—coming to our attention suggested an inquiry into the methods of various cities as regards public care of the insane pending commitment. Accordingly, we addressed inquiries to the mayors of a dozen leading cities as to the method by which insanity is determined in each—whether by jury trial or by medical examination, whether patients are arrested, how and where they are detained pending commitment, if patients are conveyed to the asylum by the sheriff, whether women attendants are required for women patients, and whether nurses are sent from the asylum to convey patients thither.

Accurate answers to these few questions would pretty fairly indicate the degree to which medical authority controls in a community; for we do not hesitate to say that the trial of insane patients by jury, the arrest of patients, their transportation in patrol wagons, their detention in police courts or jails, their conveyance to the asylum by the sheriff or by the police, the failure to furnish nurses from the asylum to escort patients, all indicate archaic conditions and show that in any city where they exist, the intelligent physicians have been unable to influence public affairs as they should. The answers received show all grades of treatment. In one city, our letter was handed to a member of the detective force for reply. His answer would lead one to infer that our inquiry referred to the criminal class. He states that "insane suspects are arrested, detained in the Emergency Hospital, and are held there for observation; then they are tried by a board of physicians appointed by the Superior Court to try the case, and in the event of a verdict of guilty they are committed to an insane asylum. There are women attendants appointed by the sheriff who have the custody of the female patients. The sheriff has charge of all insane cases."

It will be seen that the writer entirely ignores the first step in the commitment process, namely, the manner in which patients reach the emergency hospital. In like manner, from the very city where the incidents occurred which are mentioned at the beginning of this article, we are cheerfully assured that patients are detained in an emergency hospital awaiting inquiry as to insanity. Various cities do not undertake to dodge the question, but frankly state that "suspects" are taken to the jail or police station at first.

In cities where there are detention or emergency hospitals the general public may suppose that patients are immediately taken there. As a matter of fact, patients in these cities also are taken first to the police station or to the jail by policemen, in patrol wagons, in precisely the same manner as a common drunk. In the majority of the replies, the expressions used are those associated with the treatment of criminals—patients are "arrested," held in police stations or jails, "tried" by jury or judge or even by a board of examiners, sent to the asylum in charge of the sheriff or his deputies. All this is so commonplace that it probably does not arouse in any of us the quick sense of shame which it should. Does it shock us that in one city the coroner determines the mental state of the patients, or that in another the probate judge performs the function of the alienist?

It is superfluous to point out again the long-since recognized impropriety of entrusting the diagnosis of a disease to a jury of laymen. Slowly but surely this anachronism will disappear, though it still survives in some of our greatest centers, notably in Chicago. Our purpose is to call attention to the fact that during the first few days, so critical in cases of acute mental disorder, the treatment of the patient is distinctly nonmedical and is precisely that accorded to a felon. The public and the profession at large consider the patient as magically transferred to the asylum, which we now call a hospital, without at all realizing the terrifying experiences often undergone in the comparatively brief period between removal from home and arrival at the hospital. Consider the effect on a delicate, refined woman in the early stage of melancholia, suddenly thrust for a night into a jail or the cell of a police station. Such an experience would infallibly exacerbate the malady, and might even make all the difference between a favorable and unfavorable outcome.

In the small cities and in the country communities the treatment of patients is even more primitive than in the large towns. A patient is often brought many miles in an open wagon to the county seat, and placed in the county jail for varying periods before an examination is held. Jailers or sheriffs with the best will in the world are of course unfitted to give the care which insane patients need. We were lately told by a member of a state board of charities of a visit to a jail where many insane were received. The sheriff felt much aggrieved because he had been threatened with suit by the relatives of a patient who had been placed in the jail in a state of great excitement, and who had seriously injured his hands by beating against the bars of his cell door. When the sheriff's attention was called to good leather muff and wristers hanging in the office, whose use would have prevented the whole trouble, he said contemptuously: "O! them things; they've been there since before I came, but I've never touched 'em."

It is a relief to turn to instances of excellent management in some of the cities from which we have replies. Three cities seem to have nothing of the police method in their manner of dealing with the insane. These are New York, St. Louis and Baltimore. In the city of New York patients may be detained for examination as to their mental condition in but one place, the pavilion at Bellevue Hospital. Three examiners in lunacy are employed by the city of New York. They are physicians, holding their positions under the civil-service law. These examiners are stationed at Bellevue Hospital, and the patients are under their care pending commitment. Following an order for commitment, the state hospital authorities are notified, and they send trained nurses to accompany patients from the pavilion to the institution. Women patients are always accompanied by women nurses.

In Baltimore the procedure is very simple. The hospitals being in the suburbs of the city, the process of commitment need occupy but a few hours. Two physicians visit the patient in his home, and on their recommendation the board of charities makes out the commitment papers and notifies the hospital to send its ambulance, and, if necessary, a female attendant to convey the patient to the institution.

St Louis uses the observation ward at the City Hospital for the detention of patients previous to examination. On the certificate of two physicians, patients may be committed to the asylum. They are conveyed in a city ambulance, and attendants are sent from the hospital to accompany them. Doubtless there are other towns where the treatment of the insane has been divorced from the care of criminals. At any rate, the instances we have cited are cheering. We commend to county and district medical and state societies an inquiry into the actual conditions surrounding the care of the insane pending commitment in their respective communities.

THE PATHOLOGY OF ICTERUS.

In a condition like icterus, which is a symptom of many different diseases, there is always a desire to find a common factor underlying all cases. In the early days of pathology it was assumed that in all instances this common underlying factor was a mechanical obstruction of some sort, but it very soon became evident that in many cases no such mechanical obstruction could be found. In such cases the signs of biliary stasis in the liver itself, dilatation and overfilling of the bile ducts, stasis of bile in the interlobular bile passages and deposition of bile pigment in the liver cells, are entirely lacking. Inability to account for such cases on mechanical grounds led to the conception of hematogenous as opposed to hepatogenous icterus. It was thought that bile could be manufactured not only in the liver, but also in the blood. The latter form of bile formation was thought to occur in toxic and infectious conditions in which a large number of blood corpuscles were broken up in the circulation. As a result of this conception all cases of icterus which could not be classed as obstructive were ranged under hematogenous icterus, or as Naunyn and Minkowski called it, icterus from polycholia. Later it was shown that something more than excessive blood destruction was needed to account for such cases when the liver was acting normally, and in recent years many have held that the second necessary factor was a disturbance in the function of the liver cells themselves. This change in the liver cells has been compared to the disturbance in the kidney cells which produces albuminuria. This hypothesis explained especially well the icterus of infections or intoxications, and that of circulatory or nervous disturbances, because in just such conditions it was easy to imagine that the secretory powers of the liver cells might be affected. Some writers went so far at this time as to almost deny to mechanical factors any importance at all.

The recent work of Eppinger, which was based on painstaking histologic examinations and a method which rendered the walls of the bile capillaries easily visible, has led back once more to a mechanical theory of icterus. He found in various forms of icterus a dilatation of the bile capillaries with elongation, sinuosity, varicose swellings and even rupture of the walls. As a result, the bile was able to gain entrance into the perivascular lymph spaces. The obstruction, though mechanical, was not in the larger bile passages, but in the capillaries, which were either compressed by new-formed connective tissue or blocked by bile thrombi. These observations have been confirmed in the main by Abramow and Samoilowicz. Recently Winckelmann,[1] working at

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[1] Zeitschrift für klin. Medicin, vol. lv.

Minkowski's suggestion, has gone over the work afresh. The point in which Eppinger's conception differs most radically from the preceding theories of icterus is in the rôle played by the lymph spaces surrounding the bile capillaries. Doubt has been cast on the existence of such spaces, and even Eppinger himself does not describe them as definite vessels, but merely as spaces between the walls of the bile capillaries and the liver cells. According to Minkowski, there is little doubt that such spaces exist. Eppinger seems to think that in icterus the bile must reach the blood by means of the lymph channels, and there is some support to this view in the old observations of Harley and von Frey, who showed that if the thoracic duct be ligated at the same time as the ductus communis choledochus no icterus would occur. This, of course, necessitates the view that while the blood capillaries of the liver are permeable for some substances they are not permeable for bile, an idea which is by no means unthinkable in the light of our present knowledge of cell specificity. Another point in which Eppinger's conception differs from preceding ones is the recognition of the bile-stained plugs in the capillaries as bile thrombi. These are not made up of pure bile, but are bile-stained concrements which form when, as a result of disturbances in the liver cells, abnormal substances are excreted with the bile. These bodies can, perhaps, more reasonably be compared to the urinary casts than to thrombi.

While this work of Eppinger explains the pathology of many cases of icterus, Minkowski points out that all cases examined since its publication have not shown these lesions. This is especially true of cases of infectious icterus. In just such cases it has been shown that the bile is often abnormal, and may contain albumin. Such cases are probably due primarily to the liver cell changes, though the bile thrombi and mechanical stasis may occur as secondary phenomena. Minkowski thinks that though the work of Eppinger has greatly extended our knowledge of the pathology of icterus we must still recognize two forms—the true obstructive icterus, in which mechanical obstruction plays the main part, and the toxic, cyanotic and nervous forms, in which the disturbance in the function of the liver cells is the important factor.

TRUTH AND POETRY CONCERNING URIC ACID.

II.

The history of uric acid dates from a year easily remembered by Americans. In 1776 the substance was discovered by Karl W. Scheele as the constituent of a concrement, and in the same year T. Bergman found it in a stone from the bladder. Soon after it was recognized as a normal ingredient of the urine; it was fated to become the object of a long series of studies. Pure chemists busied themselves with it for a time, Fourcroy (1793) finding urea among its decomposition products, and Wöhler and Liebig (1838), showing that it is closely related to allantoin, urea and alloxan. The majority of the earlier studies on uric acid were undertaken by medical men, and one of the most interesting features of medical research during the past hundred years is the patient but tortuous course followed by those who had as their object the determining of the mode of formation of uric acid in the body. At times the pursuit seemed to be utterly futile, so ignorant were those engaged in it of the direction it should take; more than once it was necessary, to use a sportsman's expression, to "hunt change," to take a fresh scent as it were, and to seek in an entirely new quarter.

The relationship of uric acid to urea naturally suggested a similar origin for the two substances, and the earliest theories took it for granted that uric acid, like urea, is a product of albumin metabolism. Since uric acid yields urea as one of its oxidation products, two hypotheses seemed plausible—either all albumin on oxidation to urea passes, at some time or another, through a uric-acid stage, or albumin is normally oxidized directly to urea, but under certain pathologic conditions to uric acid instead. In case either hypothesis were true, a fault of oxidation would account for the appearance of increased amounts of uric acid.

Thus Lehmann, in his "Physiological Chemistry," published in 1853, advanced the first hypothesis, assuming that uric acid stands a rung higher on the ladder of descending albumin metabolism than does urea. This view was accepted by many, and the idea became prevalent that an increased excretion of uric acid must be due to disturbances of the circulation or respiration leading to interference with the normal oxidizing processes of the body. Feeding experiments (Neubauer, 1856; Meissner, 1868; Weintraud, 1896, and Spiegelberg, 1898) demonstrated that uric acid in dogs or human beings is given off largely as urea in the urine, one study showing that not more than 5 per cent. of the uric acid fed reappears unchanged in the urine. Haig (1894) asserted that, feeding small amounts of uric acid to healthy men, he could demonstrate prompt and complete excretion as such in the urine, but he is alone in this as in so many observations which contradict the work of more accurate investigators. Of course, the fact that uric acid, like other nitrogenous substances, burns in the body to urea, is no proof that all urea goes through a uric-acid forestage, and investigators were soon to learn this.

The first hypothesis received telling support from Bartels[1] (1866), who sought evidence in its favor in clinical experience, or rather, who looked for facts that were not out of harmony with the hypothesis. He laid emphasis on the "relative" amount of oxygen available; if there were "relative" insufficiency of oxygen, uric acid, he thought, instead of urea is formed. Thus in certain fevers, like that in pneumonia or those accompanying circulatory disturbances, there might be increase in uric-acid formation owing to "relatively" insufficient respiration. Excess of uric acid in leukemic urine he cited as evidence of his view. Virchow had called attention to this increase in uric acid in leukemia as early as 1847, and regarded it as due to imperfect oxidation.

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[1] Bartels: Untersuchungen über die Ursache einer gesteigerten Ausscheidung der Harnsäure in Krankheiten. Deutsches Arch f. klin. Med., vol. 1, 1866, p. 13.

In this connection it is of great interest to note that Scherer,[2] as long ago as 1851, had found hypoxanthin in the spleen and in the blood in leukemia, and had put forward the theory that leukemia is due to a sort of hypersecretion of the spleen. Five years later he found both hypoxanthin and uric acid in the blood in leukemia. The chemical relations of hypoxanthin and uric acid were beginning to be known, and a hypothesis that the spleen is the source of uric acid gained credence for a time, Ranke[3] marshaling as arguments in its favor, (1) the increase of uric-acid excretion with accompanying splenic swelling during digestion; (2) the increase of uric acid in leukemia; (3) the presence of uric acid in the splenic juice; and (4) the action of quinin which reduces the size of the spleen and diminishes uric-acid excretion. The possibility of an origin of uric acid from hypoxanthin—excessively interesting considering our present knowledge of the purin bases—seemed to threaten the view that it is derived from albumin, until some one suggested that hypoxanthin might come also from albumin and be simply a still earlier forestage of urea. Moreover, Bartels' authority was so great that his conception was the dominant one in the minds of medical men for a long time.

Telling blows against Bartels' view were struck later when it began to be shown (1) that conditions which diminish oxidation or interfere with respiration are not necessarily associated with increased uric-acid excretion; and (2) that in leukemia, where uric-acid excretion is sometimes increased, there is no evidence that the oxidizing processes are diminished. Senator (1868) constricted the thorax of dogs and rabbits, and got increased uric-acid excretion in only two out of many cases; Naunyn and Ries (1869) did not find the uric-acid excretion increased in anemia produced experimentally; Pettenkoffer and Voit (1869) showed that nitrogenous and carbon-dioxid equilibrium are maintained in leukemia in spite of uric-acid increase, and finally, in 1891, Kraus and Chwostek, and in 1893, Bohland and Geppert proved that there is absolutely no decrease in the oxygen-intake, nor any decrease in the output of carbon dioxid, in cases of leukemia.

It can be seen, therefore, how it came about that some of the oldest conceptions regarding the formation of uric acid had to be given up. These old views have had a sort of recrudescence, however, from time to time, as will be pointed out further on, when we come to deal with the ideas which supplanted them.

LOEFFLER'S NEW METHOD OF PRODUCING ANTIBODIES.

It is a familiar fact that the injection into the animal body of gradually increasing quantities of many substances gives rise to the production of specific antibodies. Among the most carefully studied substances of this class may be mentioned bacterial toxins, living and dead bacteria, red blood corpuscles, blood serum, organ cells, etc. By heating these substances, or by treatment with various chemicals, they are easily deprived of the power of calling forth antibodies. It often is desirable, however, to kill the bacteria that are used in the process of immunization before they are injected, because some living organisms, as, for instance, the tubercle bacilli, are not well borne by any of the animals that are suited for the production of antiserums. In other instances it may be necessary to sterilize the substance before it is used, because of the great difficulty of obtaining it without accidental contamination.

In these cases it has been difficult to find a convenient and reliable method of killing the bacteria without, at the same time, depriving them, or the substance which is being sterilized, of the power of calling forth antibodies. These difficulties were partly overcome by grinding up the bacteria to such a fine state that the mass no longer contained organisms capable of growth, or by sterilizing the accidentally contaminated substance with chloroform. These methods of sterilization are not perfectly reliable, and it not infrequently happened that the animal under treatment died in consequence of an injection of an imperfectly sterilized substance.

We know that enzymes, when perfectly dry, may be heated to a high temperature without being deprived of their specific properties. This fact led Loeffler[1] to attempt to produce antibodies with bacteria that had been dried and killed by heating to 150 C. for one-half hour. He not only used bacteria that were thus treated, but also blood serum, organ cells and tumor cells, and his labors seem to have been crowned with success. He dried chicken serum at a low temperature and heated the dry residue to 150 C. for one-half an hour. The residue was suspended in salt solution, and several doses were injected into a rabbit. The serum of this rabbit formed a heavy precipitate with normal chicken serum. Other heated sera were injected into various animals, and all gave rise to the formation of a specific precipitin. Loeffler dried and heated bacteria to 150 C. for one-half an hour, and immunized animals by injecting them with suspensions of the heated organisms. In this way he produced agglutinating sera for *B. typhosus*, *B. coli communis*, *B. choleræ*, the bacillus of hog cholera and the tubercle bacillus. He also obtained a serum with high bacteriolytic powers for the bacillus of cholera. Carcinoma cells were dried and heated, and suspensions of the dry powdered cells were injected into a mule. The serum of this mule gave a precipitate with a colloidal solution of carcinoma tissue, and also with such a solution of lymphoid tissue. A woman suffering with carcinoma of the breast was treated with this serum and also with a solution of the heated carcinoma cells. There was local reaction and apparent general improvement, but no arrest of the growth of the tumor.

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[2] Scherer: Untersuchungen über das Blut bei Leukämie, Verhandl. d. phys.-med. Gesellsch. z. Würzburg, vol. ii, 1851, p. 321.

[3] Ranke, H.: Beobachtungen und Versuche über die Ausscheidung der Harnsäure beim Menschen, München, 1858.

[1] Deutsch. med. Woch., Dec. 22, 1904.

Loeffler claims that this method of desiccation, heating and pulverizing will allow the material to be kept for indefinite periods, and will eliminate all danger for those handling it. Just how much can be expected from this discovery can hardly be conjectured at this time, but it seems that it may find wide application in the production of various antiserums.

WARNING AGAINST PANAMA LABOR.

The danger of misconception of the conditions in Panama[1] has led the American Federation of Labor to send circulars over the country calling attention to the real status of affairs at the Panama Isthmus. The federation declares that it is not true that the work will be easy and the wages above the normal, and urges especially that no one should go to the canal zone unless he has a position and knows under what conditions he is to labor. The warning is a timely one. The glamor naturally attendant on this great government enterprise is heightened by the illustrated articles in the papers and magazines, in spite of the frequent mention of the diseases that have been so great a factor in the mortality rate. Many who go to Panama with a little knowledge of conditions there, are liable to desire a speedy return when their knowledge is increased. The great enterprise will not lack for workers, and it will only be hindered by illy prepared adventure-seekers.

THE GROWING IMPORTANCE OF PHYSICS IN MEDICINE.

Coincident with the rapid application of chemical methods to the study of medical problems, there has been a growth of interest in more purely physical phenomena, and especially in the phenomena of that ever-widening domain which we now know as physical chemistry. The publications of Van t'Hoff, Arrhenius and Ostwald have stimulated a whole series of medical and biologic researches, like those of Pauli and Loeb, on the one hand, and those of Koranyi, Hamburger and Höber, on the other. Zikel. in 1902, published a volume on what he calls "Clinical Osmology," which deals with the osmotic states of the body fluids in health and disease. It is surprising how rapidly clinical concepts are being widened as a result of the application of these newer ideas of physical chemistry. Only a beginning has, of course, as yet been made, but the work which has been done is full of promise for the future. On page 184 of this issue Stern discusses the relations of the modern science of osmology to pharmacodynamics. In the latter field also, as will be seen by a perusal of his article, he believes that purely physical influences play an extremely important rôle. Osmotherapy is likely, he thinks, to be one of the coming developments in practical medicine.

NATIONAL INCORPORATION OF THE AMERICAN MEDICAL ASSOCIATION.

On January 9 Congressman Dwight of New York introduced a bill[1] for the national incorporation of the American Medical Association by special act of Congress. This is of special interest to the members of the American Medical Association, and, in fact, to the members of the medical profession of the country. Obtaining recognition by Congress will not only add dignity to the body which represents the medical profession of the United States, but will give it a power and an influence for good which it would not otherwise have. We hope that every physician who has at heart the betterment of sanitary affairs of our country, and the various matters in which the medical profession is interested, will use his influence where it will do the most good. The bill was referred to the Committee on the Judiciary, and at the present time the matter is wholly in its hands. Consequently, all legitimate efforts should be made to convince its members of the value and importance of the measure. The members of the Committee on the Judiciary are: John J. Jenkins, Wisconsin (chairman); R. W. Parker, New Jersey; D. S. Alexander, New York; Vespasian Warner, Illinois; Charles E. Littlefield, Maine; Lot Thomas, Iowa; Samuel L. Powers, Massachusetts; Robert M. Nevin, Ohio; Henry W. Palmer, Pennsylvania; George A. Pearre, Maryland; J. N. Gillett, California; David A. De Armond, Missouri; David K. Smith, Kentucky; Henry D. Clayton, Alabama; Robert L. Henry, Texas; J. S. Little, Arkansas, and William G. Brantley, Georgia.

LONGEVITY OF JEWS.

It is claimed that of all classes of New York City's population, the Jews are the longest lived. Considering the manner in which the majority of the Jewish population of our great cities live, this is a remarkable showing, if true. The poorer Jews, as a rule, are rigid followers of the Mosaic law, and this would indicate to some extent the excellence of the sanitary provisions of that ancient code. Insurance men, however, it is alleged, while recognizing the temperance of the Jews as a factor, are inclined to think that this longevity is a result of natural selection, the weaker elements of the Jewish race having been gradually eliminated during centuries of persecution. There is still another possible factor to be considered. For centuries the Jews have become acclimatized, so to speak, to city life, and therefore may represent the class most resistant to such environment. There are evidences, however, that modern civilization is telling through its stress and strain on the vitality of the Hebrew race. Paresis, which was formerly said to be rare among them, was found by Beadles to be particularly frequent among the London Jews. It would be a matter of much interest if a thorough study were made of this racial peculiarity of the Jews with special reference to its causal factors, and in comparison with special classes of the non-Jewish population and of wider scope than any such study yet made, both as to time and territory. It may take years, however, to reach positive conclusions, and in the meantime evolutionary changes may be taking place that will materially alter the conditions. A hundred years from now, and in even less time in some countries, the present distinctive Jewish element may have become entirely absorbed in the general population.

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[1] Announcement of the Civil Service Commission concerning conditions of service in Panama was given in The Journal, Dec. 17, 1904, p. 1881.

[1] The bill is printed in the General News columns, page 227.

TOTAL ABSTAINERS AND LIFE INSURANCE.

Jews are not the only long-lived class, according to the New York actuaries. While the well-to-do Hebrew who takes life insurance is said to be 15 per cent. better risk than the average, total abstainers from alcoholic drinks make a still better showing—from 20 to 50 per cent. over the moderate drinkers, including the Jews. The average Jew is probably not a total abstainer, and it would be of interest, if it were possible, to study out by comparison with the teetotalers the reason for the advantage of the latter. From 5 to 35 per cent. is therefore the percentage that can be credited in favor of abstinence. Of course, there are many elements that enter into the solution of the question beside the mere abstinence from alcohol, such as the probable relatively lesser frequency of accidents and exposure. etc. It seems pretty clear, however, that the advantage is with the total abstainers, and that even moderate drinking detracts from the tendency to longevity.

THE NOBEL AWARDS.

It has been a matter of some unfavorable comment that while nearly all of the European countries. except Italy and Austria, have been represented in the awards of the Nobel prizes, thus far America has been left out. It has been suggested that many of our inventors and investigators who have achieved special eminence have worked largely from practical and money-making motives, and have not been inspired sufficiently by the true scientific spirit. While this is true of a number of our great men, it has no reference whatever to a large number who ought to be mentioned as candidates for the Nobel prizes. The public here is inclined to think more of the practical side, to magnify the work of a Morse, rather than that of a Henry, on which it was based. The names of Edison, Tesla, Bell and others are everywhere familiar, while the names of those who established the principles on which the inventions depend are hardly known. In connection with this, it is of interest to note what is perhaps the principal reason—the real reason—why American workers have not been selected for the prizes. Under the conditions of the bequest of Nobel, personal applications are not received; the names of candidates must be presented for consideration by some recognized learned or scientific association or university faculty, thus relieving the awarding committee of the preliminary labor of searching out those who may be considered worthy by their compatriots or associates. When we look over the field of medicine, which is one of those in which the prizes are awarded, it does seem as if some disinterested work and some names worthy of consideration might be suggested to the awarding bodies. There has been no more fruitful or important work in the past few years than the discovery of the cause and means of prevention of yellow fever, and some survivors of that investigation have never received full recognition of their services except among their scientific brethren. The names of others whose work deserves this recognition will at once occur to scientific bodies. The American Medical Association and other organizations should see to it that their lack of activity on the subject no longer leaves an excuse for the committee to ignore America.

THE EFFICIENT JAPANESE ARMY MEDICAL DEPARTMENT.

World's Work for January contains an admirable note on "A New Epoch in Army Mortality," having for its text the effective work of the Japanese army medical corps. The Japanese medical officers are rightly praised for their work in superintending the personal hygiene of the soldier, as well as in superintending the sanitation of trench and camp. Comparing their work with that of our own army medical corps, our contemporary finds the difference in efficiency to lie "in organization and in the obedience of the men." This is a half truth. As we all know, the chief reason for the disgraceful sanitary regulations of the American Army in the Spanish war was the absence of authority in the hands of the medical officers. The Japanese medical officer can order the troops to obey certain hygienic rules. Our Army organization permits the surgeon merely to suggest. When, as at scourged Camp Chickamauga, a line officer, ignorant and self-sufficient, is in command, he can sneer at the medical recommendations which in his wisdom (?) he overrules, and may likewise be too callous to appreciate the disgrace and the personal responsibility for hundreds of needless deaths from preventable fever. The Japanese line officers may be better trained and may have a wide intelligence, but over all stands the fact that Japan provides her army medical corps with a sufficient number of members and with authority to execute those necessary precautions that are within the common knowledge of the medical profession of the world. Every American should feel chagrined that a yellow race should conduct a war with more scientific enlightenment and with greater care for the health of its soldiers than we ourselves are prepared to do. Congress has put our country far to the rear in one of the foremost characteristics of modern civilization. No fear of our soldiers not "obeying" if but an educated man is given command. No soldier is better, and whenever our authorities give the medical corps its due, it will show that the American medical officer, too, can save lives. To the closing question of our contemporary there is but one answer: the "general incredulity born of ignorance" is responsible for American disregard of medical advice. If our esteemed contemporary will for a time follow the medical press, it will readily discover that the medical profession is not to blame for public inattention to its endeavors to prolong life and to promote well-being.

Medical News.

ARKANSAS.

Asylum Report.—The biennial report of the superintendent of the Arkansas State Lunatic Asylum, Little Rock, shows that 3,631 have been admitted into the institution since it was established, and 236 in the last two years.

Smallpox in Pulaski County.—According to a statement issued by the county physician, there are about thirty-five cases of smallpox in the county, outside of the towns of Little Rock and Argenta. These cases were mostly among the negro population in the vicinity of Jacksonville and McAlmont.

CALIFORNIA.

Hospital Open.—Good Samaritan Hospital, Los Angeles, was formally reopened December 29 after improvements and enlargements had been made costing $1,000,000. It now can accommodate 100 patients.

Personal.—Dr. Hubert N. Rowell, Berkeley, has been appointed attending physician at the California State Home for the Adult Blind.——Dr. Jules A. Simion has been made a member of the San Francisco Board of Health, vice Dr. J. Coplin Stinson, resigned.——Dr. Luther M. Powers has been appointed health officer of Los Angeles, Dr. Harris Garcelon, assistant, and Dr. Sumner J. Quint, police surgeon.——Dr. Ferdinand Stabel, Redding, has been appointed physician and health officer of Shasta County.——Dr. John L. White has been made superintendent of the Sacramento County Hospital.

COLORADO.

Fire in Hospital.—Fire in the fifth floor of St. Mary's Hospital, Pueblo, nearly caused $25,000 damage and necessitated the removal of most of the patients, fortunately without casualty.

Sanitarium for La Junta.—The La Junta Sanitarium Company has been incorporated with a capital stock of $25,000, by Drs. James F. Kearns, Edward W. Ragsdale, Frank Finney, Jessie E. B. Stubbs, E. Gard Edwards, Benjamin F. Haskins and others. A hospital will be built, and a cottage sanitarium for tuberculosis will also be erected.

Self-Advertisement.—About a year ago the Otero County Medical Society requested the newspapers of the county to refrain from mentioning in any way the name of any member of the society in news items relative to illness or accident. In La Junta the request has been complied with except in two instances, and the editor has promised not again to offend.

CONNECTICUT.

Personal.—Dr. Joseph E. Root, Hartford, surgeon of the First Company, Governor's Horse Guard. has resigned.——Dr. Charles I. Page, Litchfield, and William J. Ford, Washington, have been appointed by the adjutant general post surgeons for Litchfield County.

Bequests.—An unknown benefactor has given $15,000 to Grace Hospital, New Haven, to be used for enlargement of the nurses' dormitory.——By the will of Miss Maria Terry, who died recently in Venice, Hartford Hospital will receive nearly $500,000.——Mrs. Israel Matson Lyme has bequeathed $5,000 for the use of Memorial Hospital, New Haven.

December Mortality.—During December 1,258 deaths were reported, equivalent to an annual death rate of 15.5 per 1,000. This was 96 more than in November, 89 less than in December, 1903, and 40 less than the December average for the preceding five years. Diseases of the nervous system caused 161 deaths; pneumonia, 153; heart disease, 135; consumption, 102; violence, 64; bronchitis, 33; and la grippe and diphtheria, each 26.

GEORGIA.

Donations for Hospital.—About $11,000 has been raised for the Wesleyan Memorial Hospital, Atlanta, and a prominent Methodist has, it is understood, offered to give $12.500 provided the Methodists of Atlanta would contribute a like sum.

Personal.—Drs. F. M. Ridley, La Grange, and W. Darracott Travis, Covington, have been appointed members of the Board of Medical Examiners for three years, beginning January 7.——Dr. Bernard Wolff has been elected a member of the Atlanta Board of Health.

Kills Vaccinator.—Boss Garrett of Sandersville shot and killed Special Officer Gideon Mathews, December 23, while resisting arrest for refusing to submit to compulsory vaccination. Garrett was shot through the thigh while attempting to escape and is not expected to live.

Society Election.—At the annual meeting of the Chatham County Medical Society of Savannah, January 4, the following officers were elected: Dr. George R. White, president; Drs. Ralph M. Thompson and John L. Farmer, vice-presidents; Dr. J. L. Jackson, recording secretary; Dr. A. L. R. Avant, treasurer; Dr. J. Lawton Hiers, corresponding secretary; Dr. Gustaf H. Johnson, librarian, and Drs. Marion X. Corbin, John W. Daniel and Alpheus B. Simmons, censors.

ILLINOIS.

Bogus Doctor Fined.—"Dr." Black, Rockford, charged with practicing medicine without a license, was fined $100 and costs, January 6. Black claimed that he had a diploma, but that it was in the hands of a saloonkeeper in Janesville, Wis.

Personal.—Dr. James W. Pettit, Ottawa, was thrown from his buggy January 1 while making a late call and sustained a compound fracture of the left arm above the elbow.——Dr. Benjamin L. Euans, Watseka, returned from Europe January 7.——Dr. Denslow Lewis, Chicago, is suffering from typhoid fever.

Hospital Elects Officers.—At the annual meeting of the officers and trustees of Brokaw Hospital, Bloomington, Dr. James B. Taylor was elected president; Dr. J. Whitefield Smith, vice-president; Dr. John W. Fulwiler, secretary and treasurer; Dr. Ernest S. Reedy, medical representative, and Drs. John H. Fenelon, Asa S. Fox and Covey were recommended as members of the staff.

Chicago.

Hospital to Expand.—The Passavant Memorial Hospital has acquired from O. B. Green, property adjacent to its present building, and will erect thereon a dormitory for nurses.

The Death List.—The total deaths reported, 542, were the same in the aggregate as for last week, but there were some curious changes in the individual causes of death. The following among the important show increases: Acute intestinal diseases, 7; apoplexy, 12; consumption, 11; cancer, 5; convulsions, 10; influenza, 12; suicide, 7, and typhoid fever, 3. Important causes showing decreases were: Diphtheria, 3; heart disease, 15; nervous diseases, 9; pneumonia, 27; whooping cough, 3, and measles and scarlet fever, 1 each.

The Dangers of Influenza.—The Health Department in the current issue of its Bulletin, warns strenuously against influenza, and says:

> Influenza is more prevalent and more fatal in Chicago this winter than at any time since the epidemic year 1891; twenty more deaths from this cause were reported during the week. In 1891 influenza was the chief agent in increasing the death rate more than one-fifth over that of 1890 and numbers of the survivors have never since regained their former condition of mental and physical health. This added terror of the disease makes it all the more important that nothing should be neglected which may tend to its restriction, and to this end the commissioner again points out that influenza or the "grip" is a germ disease, and therefore contagious. Hence the obvious thing to do is to follow the advice of the authorities: Keep out of the way of contagion.

The Hospital Staff.—The long-awaited announcement of the appointments to the attending staff of the Cook County Hospital has been made. The regular staff is as follows: Medicine—Drs. Robert H. Babcock, Maurice L. Goodkind, Winfield S. Harpole, James B. Herrick, Charles L. Mix, Joseph L. Miller, Robert B. Preble, Bertram W. Sippy, Samuel R. Slaymaker, Frederick Tice, Camillo Volini and Edward F. Wells. Obstetrics—Drs. Rudolph W. Holmes, Henry F. Lewis, Charles B. Reed and Rachelle Yarros. Children and Contagious Diseases—Drs. William L. Baum, Frank B. Earle, Isaac A. Abt, Frank S. Churchill, Frank X. Walls and George H. Weaver. Nervous and Mental Diseases—Drs. Sidney Kuh, Julius Grinker, L. Harrison Mettler and Harold N. Moyer. Surgery—Drs. E. Wyllys Andrews, Frederic A. Besley, Albert I. Bouffleur, Thomas A. Davis, Charles Davison, William E. Schroeder, C. W. Haywood, Aime P. Heineck, Orville W. Mackellar, B. Brindley Eads, Daniel N. Eisendrath, Malcolm L. Harris, A. E. Halstead, William Hessert, Frederick S. Hartman and Charles E. Humiston. Ophthalmology—Drs. William E. Gamble and Brown Pusey. Ear, Nose and Throat—Drs. Frank Allport and G. Paull Marquis. Skin and Venereal Diseases—Drs. L. Blake Baldwin and William A. Pusey. Pathology—Drs. William A. Evans and Edwin R. Le Count. Orthopedic Surgery—Dr. John L. Porter; and X-Ray, Dr. Edward A. Fischkin. Dr. William L. Baum was elected president of the staff.

INDIANA.

St. Mary's Hospital, Evansville, has recently been enlarged so that it can now accommodate 125 patients. An operating pavilion has also been added and a pathologic laboratory installed. At the annual meeting the following attending staff was appointed: Surgery—Drs. Pitt Y. McCoy, Charles P. Bacon and George W. Varner. Medicine—Drs. Joseph N. Jerome, Sidney J. Eichel, and Clarence Kelsay. Eye and Ear—Dr. Louis D. Brose; and Electrotherapeutics—Dr. William R. Davidson.

Suit Against Physicians Dismissed.—In the $5.000 damage suit brought against Drs. Frederick C. Eckelman and Metius M. Eckelman, Elkhart, for alleged malpractice in the treatment of a broken leg, the case against Dr. Frederick C. Eckelman was dismissed before the trial began on the ground that he was not in partnership with his son and had had nothing whatever to do with the treatment of the plaintiff; and after a three days' trial the jury returned a verdict for the remaining defendant, Dr. Metius M. Eckelman, completely exonerating him.

November Sickness and Death.—The most prevalent malady was bronchitis, which stood third in the preceding month. Typhoid fever dropped from second to fourth place. The order of prevalence was as follows: Bronchitis, tonsillitis, rheumatism, typhoid fever, scarlet fever, influenza, pneumonia, diarrhea, smallpox, pleuritis, diphtheria, inflammation of bowels, whooping cough, puerperal fever, measles, cerebrospinal meningitis. Smallpox was reported in 37 counties, with 335 cases and 12 deaths. Tuberculosis caused 337 deaths, 31 being non-pulmonary; females, 201; males, 136. Of the females 68 were married, between the ages of 18 and 40, and left 140 orphans under 12 years of age. Of the males 19 were married, of the same age period as above, and left 38 orphans. The total number of orphans caused by this disease in this month was 178. More than 300 homes were invaded. Of the 92 counties, 61 reported typhoid fever present, and probably it existed in every one of them. In the month 403 cases were reported, with 141 deaths. The disease was epidemic in Marion, Parke, Shelby, Vanderburg, Wabash, Clark, DeKalb and Grant counties. Pneumonia deaths numbered 229. The total number of deaths reported was 2.566, equivalent to an annual rate of 11.7 per 1.000. In the same month last year there were 2.516 deaths, a rate of 11.3 per 1,000.

MARYLAND.

Insane Hospital Report.—The one hundred and seventh annual report of the Maryland Hospital for the Insane shows the total number of patients under care during the year as 636. The average number of patients under treatment was the greatest in its history and its utmost capacity is reached.

New Staff Members.—The following have been added to the Cambridge Hospital staff: Orthopedic surgery, Dr. William S. Baer, Baltimore; surgery, Drs. Isaac R. Trimble, Baltimore, and William H. Noble, Philadelphia; obstetrics, Dr. Lewis M. Allen, Baltimore. A number of physicians from the Eastern Shore were made consultants.

Consumptive Hospital.—Dr. Henry Barton Jacobs has been re-elected president of the Hospital for Consumptives. The receipts for the year were $7.649, and expenditures $8.145, but of the deficit all has been raised except $500. There were 100 patients treated, 17 of whom remained only two weeks; 6 were discharged apparently cured; 16 died; 26 showed improvement. The average cost per patient for the year was $81.45.

Baltimore.

A Good Record.—There has been no case of smallpox in this city since July 1.

Coroners Busy.—Between May 1 and Dec. 31, 1904, the nine coroners of Baltimore investigated 830 deaths and held inquests in 65 cases, a total of 895.

The Herter Lectures.—Dr. Hans H. Meyer, professor of pharmacology in the University of Vienna, has accepted an invitation to deliver the second course of Herter lectures at the Johns Hopkins Medical School next October.

Disinfection of Library Books.—The Enoch Pratt Free Library has not installed any apparatus for the fumigation of books, as the Health Department provides for it. The department sends lists two or three times a week showing houses in which there are patients suffering from contagious diseases. These are kept for reference and when books are returned from any of them the assistants refuse to accept them unless either a physician's certificate is shown or a Health Department certificate that the volume has been fumigated. There has been no case of infectious disease among the employes in twenty years.

Hospital Reports.—At the Hebrew Hospital the receipts for the year were $20,020, leaving a deficit of $2,243. During the year 229 patients were admitted, of whom 101 were discharged cured, 90 improved, 10 unimproved and 10 died. In the dispensary 6,908 patients were treated and 7,532 prescriptions compounded. Improvements will be made in the operating room at a cost of $3,000. Dr. Samuel L. Frank was re-elected president of the association.——At the Presbyterian Eye, Ear and Throat Hospital last year 11,000 patients were treated. The visits to the out-patient department averaged 102 per day, and operations were performed as follows: Eye, 1,782; ear, 168; throat, 770.

Personal.—Dr. Howard A. Kelly has returned from a two weeks' hunting trip in the wilds of Florida.——Dr. George Y. Everhart, speaker of the last House of Delegates, has been appointed clerk in the state treasurer's office.——At the one hundred and fourth annual meeting of the managers of the Baltimore General Dispensary, held January 12, Drs. Haughton A. Baxley, Edward E. Mackenzie and Leonard E. Beach were elected attending physicians.——Dr. Curtis R. Burnam, resident gynecologist at the Johns Hopkins Hospital, has resigned and will go to St. Paul, Minn., to practice. Dr. G. R. Holden succeeds him.——Dr. Frank W. German fell on the ice January 7 and sustained a fracture of the left fibula.——Dr. William H. Baltzell is spending the winter in Egypt.

MICHIGAN.

Scarlet Fever Epidemic.—In East Tawas there are 18 cases and the disease is spreading rapidly. The public schools have been closed. One death has occurred.

Declines Appointment.—Dr. Thomas B. Cooley, Ann Arbor, who was selected by the Washtenaw County board of supervisors as consulting physician in cases of contagious disease, with a maximum fee of $15 and expenses for each case, has declined the appointment on account of the fixed fee and expenses.

The Most Dangerous Communicable Diseases.—Meningitis was reported during December at 5 places, whooping cough at 19 places, measles at 51 places, pneumonia at 82 places, diphtheria at 91 places, smallpox at 101 places, typhoid fever at 105 places, scarlet fever at 126 places, and consumption at 241 places. Meningitis was reported present at 1 place less, whooping cough at 1 place more, measles at 16 places more, pneumonia at 23 places more, diphtheria at 4 places more, smallpox at 2 places more, typhoid fever at 56 places less, scarlet fever at 21 places more and consumption at 6 places less, in the month of December, 1904, when compared with the preceding month.

Comparative Prevalence of Disease.—For December, 1904, compared with the average for December in the last 10 years, smallpox, dysentery and inflammation of brain were more than usually prevalent; and pleuritis, pneumonia, intermittent fever, erysipelas, diphtheria, whooping cough, remittent fever, cholera morbus, puerperal fever and meningitis were less than usually prevalent. In every month of 1904 six of the diseases which were less prevalent than usual in December—pneumonia, intermittent fever, erysipelas, whooping cough, remittent fever and cholera morbus—caused considerably less sickness than the average of corresponding months in preceding years. Also, excepting July and August, this was true of pleuritis. Ten diseases caused less sickness in December, 1904, than the average for the ten preceding Decembers.

Mortality of Michigan During December, 1904.—The total number of deaths reported to the department of state for the month of December was 2,782, corresponding to a death rate of 13.0 per 1.000 population. This rate is higher than that for the preceding month, which was 11.6 per 1,000, but lower than the rate for December, 1903, which was 14.1 per 1,000. By ages there were 519 deaths of infants under 1 year of age, 133 deaths of children aged 1 to 4 years, and 922 deaths of persons aged 65 years and over. A considerable increase is shown for the rate of mortality of infants and the aged as compared with November. Important causes of death were as follows: Tuberculosis of lungs, 176: other forms of tuberculosis, 26; typhoid fever, 51; diphtheria and croup, 50; scarlet fever, 12; measles, 5; whooping cough, 10; pneumonia, 234; diarrheal diseases of infants, 42; meningitis, 35; influenza, 34; cancer, 148; accidents and violence, 181. There were two deaths from smallpox.

NEW JERSEY.

Board of Health Election.—At the annual meeting of the Atlanta City Board of Health Dr. John R. Fleming was elected president; Dr. M. Le Roy Somers, vice-president, and Dr. Edward Guion, secretary.

Deaths Exceed Births.—The report of the Bureau of Vital Statistics of Camden shows that during the year just closed there were 1,869 marriages, 1,497 births and 1,532 deaths, thus showing 35 more deaths for the year than births, provided all births were reported.

Personal.—Dr. Henry W. Elmer of Bridgeton sailed January 12 for Port Antonio, Jamaica.——Dr. Emery Marvel, Atlantic City, had a septic wound of the finger from the puncture of a *needle while operating, but is now rapidly recovering.*——Dr. Leslie L. Hand, Millville, is seriously ill with diphtheria contracted from repeated exposures to the infection in his practice.

A Useful Circular.—The Atlantic City Board of Health has issued a leaflet of information for the *family in case of contagious* diseases, which takes up plainly and concisely the general precautions to be observed, and then gives special recommendations regarding typhoid fever, scarlet fever, diphtheria, measles, whooping cough, mumps, chickenpox and disinfection. This is intended "not to supplant but to supplement the advice of the family physician."

Cooper Hospital Report.—The annual report of the Cooper Hospital, Camden, for 1904 shows that 1,040 patients were treated in the wards; 772 were discharged cured, 85 improved, 85 not improved, and 17 left without permission. There were 115 deaths, and of these 46 occurred within forty-eight hours from the time of admission to the hospital. The average stay of each patient was 17 days. In the dispensaries 4,593 patients were treated, and 13,571 revisits were made, making a total of 18,164.

Medical Inspector's Report.—The report of Dr. Henry H. Davis, medical inspector of the Camden public schools, showed the following communicable diseases reported for investigation during December: Diphtheria, 13; scarlet fever, 16; chickenpox, 11; measles, 9; tonsillitis, 19; ophthalmia, 5, and variola, 1. The report further shows that there was a decided increase in the cases of scarlet fever and diphtheria over the corresponding month of last year. He attributes the spread of the disease to its mild form, as it was not recognized and not treated.

Society Elections.—At the annual meeting of the Atlantic County Medical Society, January 13, Dr. Emery Marvel, Atlantic City, was elected president; Dr. Edward H. Madden, Absecon, vice-president; Dr. Edward Guion, Atlantic City, secretary and treasurer, and Dr. A. Burton Shimer, Atlantic City, reporter.——At the regular meeting of the Atlantic City Academy of Medicine, January 13, the following officers were elected: President, Dr. William E. Darnall; vice-president, Dr. Edwin H. Harvey; secretary, Dr. Walt. P. Conaway, and treasurer, Dr. J. Addison Joy. A committee on ways and means was appointed, consisting of Drs. Philip Marvel, William E. Darnall and W. Blair Stewart, to take steps toward the establishment of a first-class medical library.——At the annual meeting of the Burlington County Medical Society, held January 12, the following officers were elected: President, Dr. J. Howard Pugh, Burlington; vice-president, Dr. Frank G. Stroud, Moorestown; secretary, Dr. George T. Tracy, Beverly; treasurer, Dr. Enoch Hollingshead, Pemberton, and censors, Drs. Alexander Marcy, Jr., Riverton; Elmer D. Prickitt, Mount Holly, and Alexander H. Small, Riverside.

NEW YORK.

Many Insane.—While the *certified* capacity of the New York State hospitals for the insane is 22,000, the number of patients is 25,019. The most serious condition is on Ward's Island, where, with a capacity of 3,100, there are over 4,100.

Ithaca Water Supply.—A commission has been appointed by Justice Lyon of Binghamton to determine the value of the property of the Ithaca Water Works Company, lately condemned by the city of Ithaca, for the purpose of installing an artesian water supply.

State Charities.—The State Charities Aid Association held its annual meeting January 10. The annual report called especial attention to the overcrowding of the hospitals for the insane. A bill passed by the last legislature through the influence of this association provides for the establishment of a psychopathic hospital for the reception and examination of the alleged insane in New York City. It is hoped that this will, in a very large degree, obviate the stigma which now attaches to a commitment to an insane asylum, and that by *securing earlier treatment* of incipient cases of mental disease permanent commitment in a certain number of cases will be unnecessary.

New York City.

Fewer Street Accidents.—A decrease of 23 per cent. in the number of street accidents from those of last year is shown. This is attributed to the new scheme of traffic regulation and to the work of the mounted squad.

Increase in Pneumonia.—There were more pneumonia cases reported at the hospitals January 14 than on any previous day this winter. The number of cases now reported is above the average of normal years, though not so high as last winter, when 12,366 persons died of the disease.

Pneumonia.—Bellevue Hospital is crowded to overflowing with cases of pneumonia, bronchitis and influenza. At Roosevelt Hospital *there has been no such run of pneumonia cases.* This hospital, however, has had more applications than it could accommodate. One medical ward, accommodating 28 patients, has been closed for lack of funds.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 7, 300 cases of diphtheria and croup, with 45 deaths; 282 cases of tuberculosis, with 168 deaths; 227 cases of scarlet fever, with 22 deaths; 122 cases of measles, with 11 deaths; 47 cases of typhoid fever, with 11 deaths; 138 cases of varicella, and 24 deaths from cerebrospinal meningitis.

To Prohibit Fireworks.—The chief of the fire department recommends that the sale of fireworks in this city be prohibited on July Fourth, because of the danger of numerous fires and because of loss of life and maiming of children. During the week of July 4, last year, 846 persons were taken *to the various hospitals suffering from injuries from fireworks.* This has been referred to the Municipal Explosive Commission.

Medical Society's Rights Questioned.—An application of importance has been made to Judge Leventritt, in the special term of the Supreme Court. It asserts that the law which gives the county medical society the fines imposed on persons prosecuted by its agents is unconstitutional. It is proposed to carry this case to the Court of Appeals. It has been asserted that benefits such as these conferred on the county medical society have already been pronounced unconstitutional. It *is held that the fines are the property of the state.*

New Red Cross Hospital.—This society is to have a new hospital which is to rival in completeness every other hospital in the city. William T. Wardwell has given $100,000 for the purchase of a site. John S. Huyler has donated all the brick necessary to construct the building, and an endowment fund has been started with a subscription of $3,000. Dr. A. Monae Lesser, who was surgeon-in-chief to the Red Cross Hospital during the Spanish-American War, will be surgeon-in-chief of the hospital. One of the objects of this institution will be to keep both physicians and nurses in readiness for government calls.

New York Water Supply.—James K. Apgar has a bill before the legislature excluding New York from tapping any of its streams in Westchester County for additional water supplies and also for repealing the Webster act, which enabled the city to secure land by condemnation for extension of its water-supply system. The passage of the Smith bill last year barred New York from seeking a water supply in Dutchess County, and it is stated that the representatives of Columbia and Ulster counties contemplate bringing in similar bills. These steps *seem to complicate* the difficulties of securing an adequate water supply for the city, but it is *hoped that* Governor Higgin's suggestion of appointing a state commission for the conservation of the waters of the Adirondacks and having also for its object the supply of water to the cities may hold the solution of this problem.

Buffalo.

Measles Epidemic.—There is no diminution in the number of measles cases in Buffalo. It is especially prevalent in the tenement districts among the Italians and Poles where exposure is almost a necessity because of overcrowding.

Personal.—Dr. H. Y. Grant has returned from Palm Beach.——Dr. Lawrence J. Hanley has been appointed obstetrician to the Maternity Hospital.——Dr. James Gallagher has been appointed visiting physician to the Emergency Hospital.——Dr

Charles S. Jewett has been elected president of the medical staff of the Sisters of Charity Hospital.——Dr. Benjamin Grove has been elected president of the Emergency Hospital staff.——Dr. Thomas Crowe has been elected chairman of the Board of Civil Service Examiners.

OHIO.

The Academy of Medicine of Toledo and Lucas County elected officers January 13 as follows: President. Dr. Thomas Hubbard; vice-president. Dr. Dice; secretary, Dr. Levison; financial secretary, Dr. Duncan; treasurer, Dr. John Keller; board of censors. Dr. Hasencamp; delegate to state society, Dr. Myers.

Personal.—Dr. Dwight B. Taylor, Madison, has been appointed surgeon to the Marion (Ind.) Branch, National Home for Disabled Volunteer Soldiers.——Dr. James W. Miller, Cincinnati, has been appointed district physician in place of Dr. William Muhlberg, resigned.——Dr. Louis Ransohoff, interne in the Cincinnati Hospital, sustained a fracture of the patella.

Consolidation of Medical Schools.—Dr. Charles Dabney, president of the University of Cincinnati, as the guest of the Cincinnati Academy of Medicine, January 9, delivered an address on "Medical Education," in which he expressed the hope that there would shortly be a consolidation of all the medical schools of the city, and the establishment of a medical college which could compete with the larger institutions in the East.

Danger of Contamination of Cincinnati's Water Supply.—The movement to dam the Ohio river at Cullom's Ripple has met with opposition from some, who claim that such a structure would cause contamination of Cincinnati's water supply. Dr. Byron Stanton, member of the Ohio State Board of Health, believes, on the contrary, and in this belief was sustained by other experts, that a uniform stage of water would greatly improve the drinking water.

Cincinnati's Sources of Tuberculosis.—At the regular meeting of the Cincinnati Society for Medical Research Dr. B. F. Lyle, in a paper on "The Sources of Tubercular Infection in Cincinnati," declared that infection of infants by way of the intestines and through the medium of cow's milk is seemingly rare; that the death rate from tuberculosis among school children is small, and that death certificates are not a true index of the frequency of deaths from tuberculosis.

PENNSYLVANIA.

Philadelphia.

New Surgeon for Howard Hospital.—Dr. Francis D. Patterson was elected surgeon to the Howard Hospital, vice Dr. Charles H. Frazier, resigned.

Osler's Portrait for the University.—The graduates of the Medical Department of the University of Pennsylvania who studied under Dr. Osler have taken steps to have a life-size portrait of their teacher painted and placed in the university. Graduates of the classes from 1885 to 1892 will assist in securing the painting.

Hospital Reports.—During December 4,670 patients were treated in the Medico-Chirurgical Hospital——Eighty-three patients were admitted to the Jewish Hospital in December, which, with 52 under treatment at the beginning of the month, made a total of 135; 68 were discharged cured, 13 improved and 1 died.——At the Mathilde Adler Loeb Dispensary 1,014 patients were treated.—At the Jewish Maternity Hospital 19 patients were admitted and 13 infants born.

Cancer Annex Opened.—The new cancer annex of the Home for Incurables was opened for the treatment of patients January 11. It is a three-story brick structure. The floors are of tile, the walls of cement, covered with enamel paint. There are 16 rooms for patients, 4 for nurses, a smoking room, 2 dining rooms, diet kitchen on each floor and separate lavatories for patients and attendants. At one end are verandas 12 feet wide and 40 feet long.

Personal.—Dr. Alexander C. Abbott was the guest at the annual meeting of the Kansas City Alumni Association of the University of Pennsylvania, January 6.——Dr. Albert P. Francine, under the auspices of the Henry Phipps Institute, spoke in Carnegie Hall, Pittsburg, January 12, on "To-Day's Crusade Against Consumption."—Dr. Milton J. Greenman was elected director of the Wistar Institute of Anatomy and Biology to succeed Dr. Horace Jayne, resigned.

Medical Club Elects Officers.—The Medical Club of Philadelphia held its annual meeting January 13 and elected the following officers: President, Dr. Roland G. Curtin; vice-presidents, Drs. Wharton Sinkler and Thomas G. Potter; secretary, Dr. J. Gurney Taylor; treasurer, Dr. L. H. Adler, Jr.; governor, for five years, Dr. James Van Buskirk, and executive committee, Drs. Ernest Laplace, Ernest Whitcome, Edward E. Montgomery, Walter L. Pyle and Alexander McAllister.

Bequests.—By the will of James Beckman, Doylestown, the Methodist Hospital receives $1,000.——A legacy of $2,000 was left by the will of Hannah Adler to the Jewish Hospital Association for the Mathilde Adler Loeb Dispensary.——By the will of William S. Bunting $500 was left toward the establishment of a free bed in the Episcopal Hospital as a memorial to his mother, and $500 to the Home for Incurables.——A check for $5,000 has been given to the Jewish Hospital Association by Samuel M. Fridenberg and children to endow a room in the hospital in memory of Mrs. Fridenberg.——By the will of Henry Norris $5,000 each was bequeathed to the Hospital of the University of Pennsylvania, the Pennsylvania and the Children's Hospital.

Health Report.—Pneumonia continues present in a highly malignant type, 80 deaths being due to that disease during the week. This is an increase of 18 over those of last week, and an increase of 11 over those of the week before. The total death rate was also somewhat increased, the total reaching 500, as compared with 478 last week and 736 for the corresponding period of last year. The principal causes of death were as follows: Diphtheria, 10; pulmonary tuberculosis, 52; cancer, 15; apoplexy, 25; heart disease, 54; pneumonia, 95; enteritis, 22; Bright's disease, 43, and accidents, 12. The total number of contagious diseases reported was 222, with 24 deaths, as compared with 236 and 25 deaths for the preceding week. There were no cases of smallpox reported.

GENERAL.

Biologic Station in the Bermudas.—Harvard and New York universities have agreed to conduct a biologic station in the Bermuda Islands for ten years.

The Charities of 1904.—The record for the past year shows that $62,000,000 has been given to charities in the United States. Of this sum it is estimated that hospitals have received $2,543,000. These figures are only approximate, being a compilation of published announcements.

Beri-Beri in America.—Two cases of beri-beri were discovered at the quarantine station at Marcus Hook January 8. The vessel came from Koanapali, Hawaiian Islands. The men were placed in the quarantine hospital and the crew in the detention wards and the ship was fumigated. This is the second time within a year that beri-beri has been discovered at the Philadelphia quarantine station.

Army Appropriation Bill.—January 7 the House Committee on Military Affairs practically completed the Army Appropriation bill. It carries, in round numbers, $69,000,000, which is about $3,000,000 less than the estimates and $5,500,000 less than the appropriations for the current year. For the construction and repair of hospitals, $315,000 was appropriated, a reduction of $75,000 from the previous year; for the medical and hospital department, $600,000 was appropriated, an increase of $40,000.

Yellow Fever Suspects.—The Panama Railroad steamship which arrived from the isthmus had on board Mr. Seager, secretary to Chief Engineer Wallace of the Panama Canal Commission, who was bringing the body of his wife, who died of yellow fever, home for interment. Mr. Seager is also supposed to have the disease and has been sent to Hoffman Island for observation.——The purser of the Ward line steamship *Vigilancia*, arrived from Havana, is supposed to be a victim of yellow fever and has been removed to Swinburne Island for observation.

Want to Release Lepers.—An attempt has been made in Hawaii to secure the release of certain lepers from the settlement at Molokai, the basis of the attempt being the contention that a person can not be deprived of liberty without due judicial process. Objection is made to imprisonment by administrative process. This refers to the custom of simply having a suspect inspected by the government physician, then sending the suspect to the receiving hospital where a board appointed by the Board of Health decides whether or not the case is one of leprosy and deals accordingly.

Bill to Incorporate American Medical Association.—The bill to incorporate the American Medical Association (H. R. 17335), was introduced in the House of Representatives, Jan. 9, 1905, by Mr. Dwight. The bill was referred to the committee on the judiciary and was ordered to be printed. It is as follows: A Bill to incorporate the American Medical Association. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Robert M. O'Reilly, doctor of medicine, Washington, D. C.; Presley M. Rixey, doctor of medicine, Washington, D. C.; Walter Wyman, doctor of medicine, Washington, D. C.; E. H. Gregory, doctor of medicine, St. Louis, Mo.; Henry O. Marcy, doctor of medicine, Boston, Mass.; Nicholas Senn, doctor of medicine, Chicago, Ill.; George M. Sternberg, doctor of medicine, Washington, D. C.: J. M. Mathews, doctor of medicine, Louisville, Ky.; W. W. Keen, doctor of medicine, Philadelphia, Pa.; Charles A. L. Reed, doctor of medicine, Cincinnati, Ohio: J. A. Wyeth, doctor of medicine, New York, N. Y.; Frank Billings, doctor of medicine, Chicago, Ill.; J. H. Musser, doctor of medicine, Philadelphia, Pa.; T. J. Happel, doctor of medicine, Trenton, Tenn.; Miles F. Porter, doctor of medicine, Ft. Wayne, Ind.; E. E. Montgomery, doctor of medicine, Philadelphia, Pa.; W. W. Grant, doctor of medicine, Denver, Colo.; H. L. E. Johnson, doctor of medicine, Washington, D. C.; A. L. Wright, doctor of medicine, Carroll, Iowa; William H. Welch, doctor of medicine, Baltimore, Md.; M. L. Harris, doctor of medicine, Chicago, Ill.; Philip Marvel, doctor of medicine, Atlantic City, N. J., and Lewis S. McMurtry, doctor of medicine, Louisville, Ky., and their successors, and those who may be associated with them, are hereby made and constituted a body politic and corporate by the name American Medical Association, with perpetual succession and power to take, for the purposes of its incorporation, by devise, bequest, grant, gift, purchase or otherwise, and hold or convey, both real and personal property and transact business anywhere within the United States. Sec. 2. That the object and purpose of such corporation shall be to promote the science and art of medicine and the public health throughout the United States. Sec. 3. That such corporation shall have power to make by-laws, rules and regulations, and choose officers for its government and the attainment of its purposes.

CANADA.

The Thunder Bay Medical Association was recently formed at Port Arthur, Ontario. The president is Dr. George W. Brown, Port Arthur; vice-president, Dr. W. W. Birdsall; secretary, Dr. H. E. Paul; treasurer, Dr. J. M. McGrady.

Fire in Royal Victoria Hospital, Montreal, January 14, did $40,000 damage. There were no fatalities. Lord Strathcona has cabled from London that he will bear the total cost of rebuilding the damaged portion. The number of patients admitted to the wards of this institution numbered during November 245; 229 were discharged and 11 died. In the outdoor departments there were 2,088 cases.

FOREIGN.

The Garcia Centennial.—The famous singing master, Manuel Garcia of London, who invented the laryngoscope fifty years ago, will be 100 years old March 17, 1905. The London Laryngological Society is collecting subscriptions for a present to be given to the venerable patriarch on that occasion.

German Congress for Amelioration of the Condition of Wage Earners.—The principal subject for discussion will be the protection of the workingman against industrial poisoning by enlightening him in regard to its dangers. The discussion will be opened with an address by L. Lewin. The congress will convene at Hagen June 6, 1905, and a number of the most prominent hygienists and medical authorities, as well as representatives of various industries, are actively engaged in its inception and promotion.

Plague in India.—The *Public Health Reports* state that with the advance of the cold weather, plague is again growing worse in Upper India. For the week ending December 3 the United Provinces had 4,425 deaths, an increase of 1,000 on the total of the previous week; the Punjaub, 2,446, an increase of 400; Mysore, 1,157, an increase of nearly 600; Hyderabad State, 768, an increase of 200. In the Bombay Presidency there were 6,770 deaths, an increase of 300. Elsewhere throughout India the disease remains about as before.

Fifth International Congress of Obstetrics and Gynecology.—The committee in charge of this congress has selected the following subjects for discussion: 1, Accouchement Forcé; 2, Operative Treatment of Fibromyomata of the Uterus; 3, The Vaginal Route in Obstetrics and Gynecology; 4, Critical Judgment of Operative Interventions in Case of Retrodisplacements of the Uterus, and 5. Chorio-epithelioma. The congress is expected to meet at St. Petersburg, Sept. 11-18, 1905. The chairman of the committee on organization is Prof. D. von Ott, Wassily-Ostow, University line 3, St. Petersburg. The committee has sent out a cordial appeal to all interested in obstetrics and gynecology to aid in making this congress a successful and memorable one.

Cure of Trachoma with Radium.—Herman Cohn, the well-known ophthalmologist of Breslau, writes to the *Berliner klin. Wochenschrift* of January 2 to report the rapid disappearance of the granulations in 3 cases of trachoma treated by exposure to radium. He used 1 mg. of radium bromid in a glass tube, 3 cm. long by 2 mm. in diameter, with daily exposures of ten to fifteen minutes. The granulations had been treated before with various measures by himself and others, without effect, while they were rapidly and painlessly banished by the radium, without a perceptible trace of any injurious consequences for the lid or the sight. These results confirm those obtained by R. Pardo of Turin in 2 cases of this hitherto intractable affection. His report was mentioned in The Journal of Sept. 17, 1904, page 850.

Ophthalmologist's Seal from Ancient Roman Colony.—Professor Ghirardini exhibited at a recent meeting of a Padua scientific society a seal which had been discovered in an ancient tomb at Este, the old Roman colony of Ateste. It is a fourfold seal, being square, with a different inscription on each side, signed with the name of the owner, Escagato, a physician of Greek origin. Each one of the inscriptions is the formula for some specific for eye affections. Two are for conjunctivitis and one for affections of the eye in general. The inscription was designed to be stamped on the collyrium made according to the directions of the formula, shaped, dried and hardened. Two fragments of these collyrium sticks were found with the seal, still bearing the imprint of the stamp and accompanied by some surgical instruments.

German Congress for Internal Medicine.—The twenty-second German Congress for Internal Medicine will convene at Wiesbaden, April 12-15, 1905. Professor Erb of Heidelberg will preside. The first day will be devoted to a discussion of "Heredity," with addresses by Ziegler of Jena on "The Present Status of the Question of Hereditary Transmission in Biology," and by Martius of Rostock on "The Importance of Heredity, Especially in Pathology and in Tuberculosis." Several communications have been announced on the treatment of leukemia with the Röntgen rays; by Schütz of Wiesbaden on "The Mucous Secretion of the Intestines;" by Matthes of Jena on "Autolysis," and by Clemm of Darmstadt on "Adhesive Plaster Supports in Treatment of Abdominal Viscera." Dr. E. Pfeiffer of Wiesbaden, Parkstr. 13, is secretary of the congress, which will be accompanied by an exhibition of instruments and appliances of interest to internal medicine.

New Poisons Law Wanted in New South Wales.—The Pharmacy Board of New South Wales has asked the government to provide a new poisons law. The old poisons act is now about 30 years old, and is said to be utterly inadequate for the requirements of the community. It does not prevent any person giving poisons away. Abortifacients may be given free of charge. Any person may sell any poison he likes, stating that he deals wholesale, and the law may not interfere, because the old law exempts wholesale dealing without stating what that shall mean. The *Australasian Medical Gazette* states that the proposed new act provides that no person shall be allowed to sell or give or supply poison of any kind unless he is licensed to do so. Ample provision has been made to issue licenses to dealers in poisons necessary for pastoral, agricultural and industrial purposes. A small fee has been provided to enable the board to carry out the provisions of the act. All licenses are to be renewed annually.

Successful Radiotherapy.—Lassar of Berlin presented an array of patients cured of cancer by modern methods of treatment which aroused great interest at the meeting of the German Cancer Research Committee on December 13. He exhibited a number of patients who had been cured for years of small, recent cutaneous cancer by arsenic internally. He says that this has never failed him under such conditions during twelve years' experience with it. He then marshaled 4 patients completely cured by Röntgen or radium treatment, some of them for years. Large cancroids vanish without exception under the *x*-rays, even those of long standing. Smaller ones, especially such growths on the lips, subside permanently under radium. He demonstrated a number of inoculation cancers which had been invariably cured. He also exhibited a number of patients cured of mycosis fungoides and fibrolipoma by the same measures, and also a large number of patients with sarcoma recurring after treatment by various other measures, the lack of permanent cure in these cases contrasting forcibly with the permanence of the results obtained with radiotherapy. A recent article by Lassar on the subject was reviewed in these columns on page 79. Béclère has been studying the radium rays in Curie's laboratory and announces a number of interesting points which he has learned in respect to dosage, etc. A report of his communication first comes to hand in the *Bull. Soc. Med. des Hop.*, December 22, No. 38. He finds the chromoradiometer a convenient means of determining the activity of radium, although the cutaneous reaction differs materially from that observed with the same dosage of Röntgen rays. He distinguishes between the true reaction, which sometimes does not appear until several weeks after the exposure, and the prereaction. He calls attention to the advantages of applying radioactive substances spread out in a thin, even layer between a square sheet of aluminum and one of platinum pivoting on a handle. By using a rectangular box of this kind it is possible to apply the rays evenly over a surface, none of the exposures overlapping or leaving gaps between them. He styles the radium salts "the pocket edition of the Röntgen tube," adding that they represent at the same time an extremely small and an extraordinarily soft tube. They are indicated chiefly for lesions of no great extent, either on the surface or in the depths, located at points difficult of access to the Röntgen rays. Danlos is convinced that the lack of penetration noted is due to the minute amounts of the radium salts employed. He has obtained effects on the screen through a silver dollar (five-franc piece), through a book with 1,000 pages, through a plank more than 2 cm. thick, and through his hand.

LONDON LETTER.

False Imprisonment (of Lepers) on a Large Scale.

Under the title of "False Imprisonment on a Large Scale," Mr. Jonathan Hutchinson protests in the *Times* against the detention of the lepers of Cape Colony in Robben Island, a rock-bound, sandy and treeless island near Capetown, as a blunder of pseudo-science and of a too credulous legislative authority. He compares this case with that of Mr. Beck, whose false imprisonment twice on a charge for which he has been shown to be innocent has created a great sensation in this country. It may be remembered that in his recent journey for the investigation of leprosy in South Africa Mr. Hutchinson visited Robben Island. Speaking from observation he says that the suffering which the lepers undergo in consequence of their detention is enough to make them wish for death. They sink into a condition of dull, hopeless apathy which knows no relief. Once a prisoner on the island a person is there for life. The leprosy law of Cape Colony consigns to that prison every one, without regard to sex, age or social position, who shows symptoms of leprosy in any stage or form. Release is only possible under a medical certificate of absolute cure. Until the last few years such certificates have scarcely ever been given and they are still very infrequent. Mr. Hutchinson points out that the creed that leprosy is contagious, which is held to justify this compulsory isolation, is with a certain definite exception refuted by a thousand facts. This exception is what he calls "commensal contagion"—taking food from a leper who has sores on the hands—a contingency which can easily be avoided.

Epidemic and Epizootic Plague.

An official report on plague by Dr. William Hunter, government bacteriologist in Hongkong, argues that the current views as to the etiology and pathology of the disease are erroneous. It is believed that the bacillus appears in the peripheral blood a few days before the fatal termination, that the bubonic is the typical variety of plague, that the bubo is an early manifestation of infection, and that gastrointestinal symptoms are of secondary importance. These views, it is urged, must be modified or discarded. The bacillus has been shown by Mr. J. Bell of the Government Civil Hospital, Hongkong, to be present in the peripheral blood from the initial stage of the disease. The application to plague of Ross' method of examining the blood in malaria shows that during the first or second day the bacillus can be found in numbers in the peripheral blood, in fact, before the bubo develops. This observation is confirmed by Dr. Hunter. This is opposed to the prevalent view that the bubo is an early if not an initial manifestation and an effort of the gland to arrest the bacillus. According to Dr. Hunter, plague is primarily a septicemia and the assumption of the bubonic, pneumonic or septicemic form is a secondary matter. Mr. Bell has found that by examination of the blood plague can be as easily diagnosed as malaria on the first or second day. The channel by which plague is conveyed to the human body, according to Dr. Hunter, is the gastrointestinal tract, and his evidence is very strong. If cases were seen at the earliest stage, before feverish symptoms have developed, in the vast majority diarrhea and vomiting would be noticed. Dr. Hunter also contends that pneumonic plague may be primary, i. e., that the bacillus may be inhaled. The importance of infection by the alimentary canal is great, for almost all domestic animals contract plague, birds are subject to it and, as proved by Dr. Hunter, flies, cockroaches and other non-suctorial insects harbor plague bacilli both on and within their bodies, rendering contamination of food easy. Dr. Hunter finds that epizootic plague always precedes epidemic plague, that the time between the initial cases of plague in the rat and in man is from 10 to 14 days, and that the disappearance of epizootic is followed in a week or two by the subsidence of the epidemic. Writing on the "Bridging of Epidemics," Dr. Hunter shows that plague in rats is present throughout the whole year, but that the disease becomes widespread at certain times of the year; in Hongkong during the first quarter of the year, and within a week or fortnight it becomes almost epidemic. Throughout the epizootic period the type of plague among rats is acute, but subsequent to the epizootic and epidemic periods and between the epidemics plague in rats occurs only in a chronic form. This explains the obstinate clinging of the disease to particular areas and its periodical recrudescence. About 75 per cent. of the rats caught alive are infected with chronic plague and the recrudescence of plague in rats in an acute form appears to depend on the infection of fresh generations of rats, the young animals being highly susceptible. Human plague is epidemic only during acute exacerbations of the epizootic and disappears or diminishes while chronic plague is present among rats.

Preservatives in Milk.

An important report on this subject has been presented to the Essex County Council by Mr. Dymond, lecturer on chemistry, Dr. Dyer, district agricultural analyst and joint public analyst, and Dr. Thresh, county health officer. The points considered by them were the effect of wet and dry weather on milk and the use of preservatives in dairy produce. With regard to the first question, they examined over 1,000 specimens and found that, although the richness of milk showed considerable variations, the average results were much above the limits of the Board of Agriculture and that there was no evidence that very dry weather or very wet weather produced any influence such as to render the board's limits unfair or onerous to the farmer. They were unanimous that it was to the interests of the farmer, as well as the consumer, that the board's regulations should be uniformly enforced. The use of preservatives was found to be unnecessary under the conditions of modern dairying with proper cooling appliances and due regard to cleanliness. The practice was further condemned as objectionable where infants are concerned. All the experts were of opinion that the use of preservatives in milk, including boracic acid and formalin, should be prohibited and that the quantities admissible in other dairy products should not exceed those permitted in the recommendations of the departmental committee.

Reformatories for Inebriates.

Dr. Branthwaite, inspector under the "inebriates act," has issued an instructive report for 1903 on the inmates of the reformatories provided under the act. The numbers have greatly increased in recent years as the working of the system is becoming appreciated. The number under detention at the end of 1903 was 1,012, against 88 five years before. Among these habitual drunkards there is a remarkable absence of the disease due to alcoholism. There has been one clear case of chronic Bright's disease. Many were suffering from symptoms of hepatic congestion, enlargement of the liver, slightly jaundiced conjunctiva and habitual constipation. But the symptoms disappeared under treatment. There was not one typical case of cirrhosis of the liver among these 1,000 worst drunkards in the country and no instance of ascites. Their mental condition was not so satisfactory. The majority were "feeble-minded," not amenable to jurisdiction as lunatics, but to a certain degree irresponsible. It would be difficult to find more than a third capable of passing muster as quite sane as compared with persons of average mental capacity.

Ice and Cold Storage.

The London County Council has issued a report on the fitness for consumption of ice sold in this country and conditions under which the cold storage business is conducted. Most of the ice used in London comes from small lakes and ponds in Norway, which are said to be situated in such secluded sites as to render contamination highly improbable. But it is by no means certain that the sanitary conditions at the harvesting grounds or the means of transfer and storage are satisfactory from the hygienic standpoint. The council, therefore, recommends that ice required for consumption or brought into contact with food should be that made artificially from pure and preferably from distilled water.

Correspondence.

Medical Society for the Study of Alcohol and Narcotics.

HARTFORD, CONN., Jan. 9, 1905.

To the Editor:—The American Medical Society for the Study of Alcohol and Narcotics will hold its annual meeting at Portland, Oregon, July 12, 1905. This society is composed of members of the American Medical Association who are especially interested in the study of the alcoholic problem and the diseases which follow. The purpose of the society is to study medically the clinical, etiologic, therapeutic and medicolegal aspects of this subject. Every year the increasing prominence of the diseases and the injuries due directly to alcohol make it more and more imperative for medical men to become familiar with the general principles of these neuroses and to be able to advise wisely the best means of prevention and cure. This society is trying to build up a new and broader interest in the subject among physicians to enable them to become teachers rather than followers of the public opinion of to-day. Several excellent papers have been promised for this annual meeting, and an earnest appeal is made to all medical men to take up this subject from a scientific point of view and to assist by their contributions or presence at the coming meeting. T. D. CROTHERS, M.D., Secretary.

Preparation of the Parturient Patient.

FORT STANTON, N. M., Jan. 9, 1905.

To the Editor:—Why is it that the great majority of obstetricians are so neglectful of surgical cleanliness as applied to the external genitals of women in labor? The gynecologist shaves and scrubs the external genitals for every minor operation, and the surgeon does the same even when his field is in the abdomen six inches from the nearest of the pubic hair But in a disgracefully large proportion of all deliveries no attempt whatever is made by the obstetrician to clean his field of operation, with the result of thousands of unnecessary deaths every year and an incalculable amount of chronic invalidism and sterility.

Location, anatomic conformation and functions of the vulva all combine to favor the accumulation there of a large and varied assortment of putrescible materials and pathogenic bacteria. Yet many an obstetrician allows his sterilized hand to come in contact with it at frequent intervals during labor, and so rubs bacteria into the stretching and splitting cervix. The full bath before labor is, of course, of some effect in reducing the possibilities of infection; but those familiar with surgical asepsis know that nothing but orthodox shaving and scrubbing can be relied on to prevent contamination of the birth canal during the examinations. It is not proposed to attempt to clean the vagina in ordinary cases. Theory and experience both show that the vagina can take good care of itself.

The passing of the finger through a septic vulva during labor is responsible for thousands of deaths and tens of thousands of cases of prolonged ill-health. That this state of affairs is still tolerated in obstetrics while it no longer is in surgery is due to a number of causes, not one of which is a real justification. In the first place surgery is practically a new art by reason of the revolutionary changes resulting from anesthesia and antisepsis; hence, patients expect surgeons to do things incomprehensible to the lay mind. But obstetrics, as many practice it, has changed little or none in the last fifty years. Every old woman considers herself a competent critic in the art, and frowns on all innovations, especially on those she can not understand or that make for her extra work. Thus, in contrast to the surgeon, whose patients come to him in a state of absolute helplessness, the obstetrician is often the most henpecked creature alive.

Fifty years ago the profession took a long step toward eradicating sepsis as a noteworthy cause of death after labor, and ever since has balked at the second and final one. Thanks to Holmes and Semmelweis, we no longer go from autopsies to deliveries without washing our hands. To remove the other constant source of infection, and so still further to reduce the mortality, it is necessary to scrub and to shave the vulva before labor, as the gynecologists do before an operation.

But it is easy to scrub one's own hands, while it requires more than ordinary tact and courage to succeed in inducing a frightened woman to submit to a disagreeable procedure which all her female friends assure her is unnecessary. Only by gradually and persistently educating the public and by arousing the conscience of the profession can this important reform be carried out. It is hoped that another Holmes with an inspired pen and another Semmelweis with an array of convincing statistics will come forward to do the work of awakening. In the meantime the rank and file of the profession will slumber on in the comfortable delusion that hand-scrubbing is the alpha and omega of obstetric asepsis and that the thousands of deaths and tens of thousands of cases of chronic invalidism from sepsis every year are an "irreducible minimum" and a necessary part of the curse of Eve.

NORMAN ROBERTS.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ALBUMINURIA.

BATH, ME., Jan. 2, 1905.

To the Editor:—In your answer, Dec. 31, 1904, to my query concerning the Spiegler-Jolles reaction, you say to filter the urine through asbestos. Do you mean asbestos paper? What is the character of this asbestos, and where can it be obtained?

HORACE FOX.

ANSWER.—Asbestos fiber comes in masses like cotton and should be readily obtained of any dealer in chemical supplies. The long fibers are best. Place a small, perforated porcelain disc in a funnel; suspend the asbestos in water and pour on the suspension until an even layer of asbestos is formed on the disc. The layer should be thick enough to yield a clear filtrate.

INJECTION TREATMENT OF HERNIA.

———, MINN., Jan. 4, 1905.

To the Editor:—Kindly give me the titles of about two good articles on the injection method for cure of inguinal hernia. Is this method used to any extent by reputable physicians?

MINNESOTA.

ANSWER.—Feid: "Treatment of Hernia by Injection," *Cincinnati Lancet-Clinic,* 1897, n. s., vol. xxxix, p, 182, Griffen: "Treatment of Inguinal Hernia by Injection," *International Journal of Surgery,* N. Y., 1897, vol. x, p. 355. Guim: "Injection Treatment of Hernia," *Texas Medical Journal,* 1900, vol. xvi, p. 71. These three are comparatively recent articles in English. A more elaborate article in German, "Treatment of Hernia with Alcohol Injections," by Steffen, may be found in *Samml. klin. Vortrage,* n. f., 1904, No. 369. The results of the injection treatment are so poor when compared with those of the modern operative procedures that the injection method finds little to recommend it.

SEQUELS OF GONORRHEA.

BROOKLYN, N. Y., Jan. 11, 1905.

To the Editor—In THE JOURNAL January 7, page 51, under the above heading, you answer the query in a way that gives an erroneous idea of the capabilities of the disease, inasmuch as you fail to mention any other than the acute—local—after-effects, and make no mention of the general life-long constitutional after-effects that most frequently result. These last are usually overlooked in the "years after," the physician usually ascribing same to other causes, when a careful study of the life history of a series of such cases would force a careful observer, if put on the right track, to conclude that gonorrhea is a constitutional disease with secondary and tertiary as well as hereditary manifestations, and that it is a frequent etiologic factor in a large percentage of chronic conditions. Some few of the chronic after-effects that may be most frequently noted are the following: Chronic catarrhal states, nasal, bronchial, gastrointestinal, and genitourinary; chronic rheumatic and neuralgic tendencies and states; morbid mental conditions of all kinds and degrees; passive congestions due to sluggishness of the venous system and producing first catarrhal states, to be followed secondarily by hyperplasia, and still later by fibrosis of structures involved; tendency to new growths both benign and malignant—anything from warts to cancer; marasmus and gastrointestinal diseases of infants, most frequently seen in the offspring of a gonorrheal parent. Many infants, when old enough to do so, will persist in "lying on face with knees drawn up under belly," and in every such case you may be positive that one of the ancestors has had gonorrhea.

W. H. FREEMAN.

ANSWER.—Our correspondent does well to realize as fully as he does the immense and protracted evil consequences of gonorrheal infection. He is not correct, however, in stating that we failed "to mention any other than the acute—local—after-effects." We mentioned several that are either not local or not acute. We purposely confined our answer to "the diseases and conditions usually included" because that was the question asked.

Marriages.

John W. Carico, M.D., to Miss Effie Hill, both of Cloverdale, Cal., December 30.

Asa N. De Vault, M.D., to Miss Mary Anderson, both of Chicago, December 21.

Guy A. Grafton, M.D., Hayward, Wis., to Miss Josephine Heyer of Superior, Wis.

Maurice Packard, M.D., to Miss Blanche Vogel, both of New York City, January 1.

Eugene F. Holland, M.D., to Miss Pearl Ingram, both of Mulberry, Tenn., January 4.

Eugene H. Smith, M.D., Ogden, Utah, to Miss Edith Burns of Omaha, Neb., January 4.

Walter M. Ely, M.D., to Miss Nora Ingle, both of Walla Walla, Wash., December 31.

D. D. Talcott, M.D., Crofton, Neb., to Miss Ethel Milner of Belvidere, Ill., December 27.

Edward C. Ledman, M.D., to Miss Zella N. Buchanan, both of Norwich, Ohio, December 28.

J. Maggard, M.D., Wichita, Kan., to Miss Erna Barteldes of Lawrence, Kan., December 31.

Joseph R. Anderson, M.D., to Miss Georgia Lewis, both of Owensboro, Ky., December 27.

Lee Wallace Dean, M.D., to Miss Ella M. Bailey, both of Iowa City, Iowa, December 29.

Roland H. Shippey, M.D., Rock, Kan., to Miss Angie Cecilia Gray of Denver, Colo., December 28.

Arville W. Bitting, M.D., Lafayette, Ind., to Miss Katherine Eliza Golden of Wollaston, Mass.

Robert W. O'Donnell, M.D., Monroe, La., to Miss Amelia Hardel of New Orleans, January 4.

Alfred R. Seebass, M.D., to Miss Herta Thies, both of Denver, at Cheyenne, Wyo., December 19.

L. Rollin Hudelson, M.D., Milroy, Ind., to Miss Maude Ellis of New Castle, Ind., January 4.

Edward Jenner Barrett, M.D., Chicago, to Miss Julia Dennett of Sheboygan, Wis., January 11.

Capt. Thomas Henry Mathews Clarke, R.A.M.C., to Miss Susan Morrell Chapin of Pennsylvania.

Lynn Moore Barnes, M.D., to Miss Donna Ullery Buckingham, both of Decatur, Ill., January 10.

Thomas M. Meriwether, M.D., Elberton, Ga., to Miss Nita Kendrick of Dawson, Ga., December 29.

Harry S. Prentiss, M.D., De Soto, Mo., to Miss Edith Garsides of Little Rock, Ark., December 27.

W. V. Stanfield, M.D., West Point, Ind., to Miss Edith Closson of Newtown, Ind., December 28.

Charles F. McComb, M.D., to Miss Helen Jensen, both of Duluth, at Stillwater, Minn., January 17.

Homer Sylvester, M.D., Milwaukee, Wis., to Miss Janette Atwood, at Edgerton, Wis., December 21.

E. Van Camp, M.D., Butler, Mich., to Miss Bessie May Gates of Red Wing, Minn., December 29.

Charles Bernstein, M.D., Rome, N. Y., to Miss Lillian Watson Stebbins of Warsaw, N. Y., January 3.

George B. M. Bower, M.D., Fort Wayne, Ind., to Miss Lillie Weld of Guthrie Center, Iowa, December 26.

Thomas A. Buchanan, M.D., Oklahoma City, Okla., to Miss Winifred Brown of Virginia, Ill., January 3.

Clyde Van Osdol, M.D., Milan, Ind., to Florence M. Olmstead, M.D., of Versailles, Ind., December 29.

Louis Fuldner, M.D., Milwaukee, to Miss Carolyn Elizabeth Blanchard of Lake Geneva, Wis., December 28.

John Randolph Jordan, M.D., Ellaville, Ga., to Miss Elizabeth Williams of Buena Vista, Ga., December 31.

Edward Thomas Lawler, M.D., Cedar Rapids, Iowa, to Miss Laura Mae Green of West Union, Iowa, January 17.

Christian Waldkoenig, M.D., Baltimore, Md., to Miss Florence Aurora Mills of Douglasville, Ga., December 29.

William Charles Schroeder, M.D., Portsmouth, Va., to Miss Margaret V. Hill of Raleigh, N. C., December 29.

William Wallace Ralston, M.D., Houston, Texas, to Miss Ella Kate McCollum of Lockport, N. Y., December 28.

Leander Armistead Riley, M.D., Oklahoma City, Okla., to Miss Gertrude Darrall of Galveston, Texas, January 11.

Joseph B. Hardy, M.D., St. Louis, Mo., to Miss Minnie B. Withers of Topeka, Kan., in Kansas City, Mo., January 3.

Deaths.

Churchill Carmalt, M.D. College of Physicians and Surgeons in the City of New York, 1891, a member of the American Medical Association, New York State Medical Association, Association of American Anatomists, and New York Academy of Medicine; assistant surgeon at the Woman's Hospital; one of the founders of the Hudson Street Hospital; demonstrator of anatomy in the College of Physicians and Surgeons; formerly assistant to the late Dr. T. Gaillard Thomas; a gynecologist of repute, died at his home in New York City, January 8, from pneumonia, after an illness of three days, aged 39.

William H. Prioleau, M.D. Medical College of the State of South Carolina, Charleston, 1893, a member of the American Medical Association; formerly acting assistant surgeon in the United States Public Health and Marine-Hospital Service; a member of the Mississippi Valley Medical Association, Medical Society of the State of North Carolina, and Buncombe County Medical Society, formerly of Asheville, N. C., died at his home in Charleston, S. C., January 4, after a long illness, aged 35.

James Walter Hervey, M.D. Indiana Central Medical College, Indianapolis, 1850, surgeon of the Fiftieth Indiana Volunteer Infantry in the Civil War; one of the oldest members of the Indiana State and Marion County medical societies; a member of the legislature in 1854; delegate to the International Medical Congress in 1892, died at his home in Indianapolis, January 5, from a severe cold, after an illness of three days, aged 85.

Henry Mallery, M.D. Medical Department of Western Reserve University, Cleveland, 1850, president of the Board of Health of Hamilton, Ohio, and one of the oldest practicing physicians in the state, died at his home, December 21, from pneumonia, after an illness of two days, aged 82. He served as surgeon to the Fourth Kentucky Infantry and afterward as division surgeon during the Civil War.

Warren Hunter, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1860, physician of Rock Island County for six years, assistant surgeon of the One Hundred and Sixteenth Maine Volunteer Infantry during the Civil War, died at his home in Oneida, Ill., January 6, from uremia, aged 72.

Joanis Orlando Harris, M.D. Geneva (N. Y.) Medical College, 1851, assistant surgeon of the Fifty-third and One Hundred and Thirty-eighth Illinois Volunteer Infantry in the Civil War, died at his home in Ottawa, Ill., January 10, from pneumonia, after an illness of only one day, aged 76.

George V. Convery, M.D. Long Island College Hospit Brooklyn, N. Y., 1880, for many years surgeon in the marine and later inspector of the Brooklyn Depart

Health, died at his home in South Brooklyn, N. Y., January 7, after an illness of four months, aged 44.

Richard Kidder Taylor, M.D. Medical College of Virginia, Richmond, 1846, medical purveyor in the Confederate service during the Civil War, died at his home in Keokuk, Iowa, January 6, from heart disease, after an illness of two months, aged 78.

D. Albert Barnum, M.D. Albany (N. Y.) Medical College, 1865, assistant surgeon in the Sixteenth New York Heavy Artillery during the Civil War, died at his home in Cassville, N. Y., from gastritis, January 1, after an illness of a few hours, aged 59.

Frank Chambers, M.D. University of Louisville Medical Department, 1875, a member of the American Medical Association and one of the best-known physicians of Hancock County, Ky., died at his country home near Chambers, January 5, from dropsy.

Harry D. Quarry, M.D. Trinity Medical College, Toronto, Ont., 1889, some-time secretary of the North Dakota State Board of Health, a specialist on the eye and ear, died at Mentone, Cal., December 27, from tuberculosis, after a long illness.

William A. Norred, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1902, committed suicide in his rooms in Minneapolis, January 12, by shooting himself through the heart while despondent, aged 34.

E. B. Freeman, M.D. Jefferson Medical College, Philadelphia, surgeon in the Confederate service during the Civil War, died at his home in East Rome, Ga., January 6, from the effects of carbolic acid accidentally administered, aged 74.

Edmund C. Purcell, M.D. Missouri Medical College, St. Louis, 1887, a member of the American Medical Association, died at his home in Elyria, Denver, Colo., from pneumonia, after a short illness, January 3, aged 49.

Frank L. Connerly, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1894, of Lake Village, Ark., was accidentally shot and killed while hunting near McGehee, Ark., December 20, aged 48.

Carl V. Scheuermann, M.D. Western Pennsylvania Medical College, Pittsburg, 1894, clergyman and physician, died at his home in Pittsburg, January 4, from pneumonia, after an illness of five days, aged 42.

John Hill, M.D., assistant surgeon of the Forty-first Ohio Volunteer Infantry in the Civil War, died at Vincennes, Ind., December 27, from cerebral hemorrhage, after an illness of two months, aged 62.

Noble C. McMorris, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1856, died at his home in Duncannon, Pa., December 27, from pneumonia, after a short illness, aged 68.

George P. Dobson, M.D., one of the oldest practitioners of Dickson County, Tenn., died at his home in White Bluff, December 31, from paralysis, after an illness of three days, aged 70.

James Edward Kempf, M.D. University of Louisville Medical Department, 1878, of Jasper, Ind., died at St. Anthony's Hospital, Louisville, January 8, after on operation for appendicitis, aged 48.

Achille Chouinard, M.D. Laval University Medical Department, Quebec, 1902, recently returned from studying in France, died at his father's home in Quebec, October 11, from tuberculosis.

Alfred Tygesson, M.D. University of Lund, Sweden, 1891, a morphin habitué, committed suicide at his home in Hartford, Conn., January 6, by taking 25 grains of morphin, aged 48.

Roosevelt H. Davis, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1852, died at his home in Eaton Rapids, Mich., January 7, aged about 80.

Charles A. McNulty, M.D. The College of Physicians and Surgeons of Chicago, 1887, committed suicide by shooting himself in his room at Harlem, Mont., Oct. 6, 1904.

John Reynolds Pomeroy, M.D. Toronto University Medical Faculty, 1878, died at his home in St. Louis, December 30, from septicemia following mastoid abscess, aged 55.

Joseph L. Hillmantel, M.D. Northwestern University Medical School, Chicago, 1887, formerly of Milwaukee, but more recently of Missoula, Mont., died December 21.

William de la Fletcher Ward, M.D. San Francisco, 1894, died from ptomain poisoning at his home in Santa Rosa, Cal., January 6, after an illness of two days, aged 53.

James W. Agee, M.D. St. Louis Medical College, for forty years a practitioner of Valley, Neb., died at his home in that place from pneumonia, January 8, aged 71.

Cyrus McCormick, M.D. University of Maryland School of Medicine, Baltimore, 1868, died at his home in Berryville, Va., January 3, after a long illness, aged 59.

Charles W. Goodale, M.D. Rush Medical College, Chicago, 1869, died at his home in Metz, Ind., from kidney disease, after a long illness, January 5, aged 60.

Jennie Brooks Hildebrand, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1870, died from pneumonia at her home in San Francisco, January 7.

David S. Minton, M.D. New York University, New York City, 1878, died at his home in New York City, January 2, from cerebral hemorrhage, aged 65.

W. P. Hough, M.D. Tulane University of Louisiana, New Orleans, 1883, of Columbia, La., died in Monroe, La., January 3, after an illness of several months.

William C. Cox, M.D. Cincinnati, 1848, died at his home in East Nashville, Tenn., January 6, from senile debility, after an illness of seven months, aged 88.

Peter Reid McMonagle, M.D. University of Vermont Medical Department, Burlington, 1859, died at his home in Prescott, Ont., December 20, aged 71.

George H. Cagle, M.D. St. Louis Medical College, 1875, of Mandeville, Ark., was shot and killed while hunting near Texarkana, January 8, aged 60.

Peter J. McCormick, M.D. New York University, New York City, 1858, died at his home in Yazoo City, Miss., January 3, from cerebral hemorrhage.

Henry Martyn Wells, M.D., medical director United States Navy from 1861 to 1897, died at his home in New York City, January 12, aged 70.

Andrew J. Brewer, M.D. University of Louisville Medical Department, 1879, of Muskogee, I. T., died December 30, at San Diego, Cal., aged 58.

George W. Gillette, M.D. University of Buffalo (N. Y.) 1888, died suddenly at his home in Buffalo from heart disease, December 17, aged 55.

Samuel B. Shaw, M.D. Beaumont Hospital Medical College, St. Louis, 1901, of Bowesmont, N. D., died recently in a hospital in Minnesota.

James J. Kerr, M.D. Cincinnati, 1878, died at his home in Cincinnati, Iowa, December 29, after an illness of several months, aged 84.

Jerome H. Hardcastle, M.D. Medical College of Virginia, Richmond, 1865, died at his home in Middletown, Del., December 31, aged 64.

M. W. Coffman, M.D. Colorado School of Medicine, Boulder, 1900, of Boulder, Colo., died in Denver from tuberculosis, June 9, 1904.

Hugh L. Ray, M.D. Years of Practice, Kentucky, 1894, of Vaughan's Mills, Ky., died suddenly in Bellevue, Ky., January 10, aged 68.

Axel M. Anderson, M.D. Cincinnati, 1899, of Erie, Pa., died recently in Chicago, and was buried in Jamestown, N. Y., December 28.

Monroe Wilkinson, M.D., formerly of New Haven, Ky., died at his home in Louisville, Ky., December 31, from pneumonia, aged 67.

J. L. Vowell, M.D. Missouri Medical College, St. Louis, 1878, formerly of Sunset, Texas, died at Bowie, Texas, December 28, aged 70.

James D. Landrum, Years of Practice, Kentucky, 1894, died at his home in Mayfield, Ky., January 9, from senile debility, aged 82.

Isaac Nock, M.D. Pennsylvania, 1867, died at the Canton (Ohio) County Infirmary, December 27, from pneumonia, aged 77.

James I. Ferron, M.D. Keokuk (Iowa) Medical College, died at his home in Council Bluffs, Iowa, December 28, from pneumonia.

William Harper Davis, M.D. New York City, 1896, died at his home in Brooklyn, January 8, after a long illness, aged 33.

John Lucas Meriwether, M.D., of Mathews Station, Ala., died at a private sanitarium in Atlanta, Ga., January 2, aged 55.

W. D. Young, M.D. College of Physicians and Surgeons, Baltimore, 1889, of East Durham, N. C., died Sept. 25, 1904.

John H. Crawford, M.D. St. Louis, 1879, died at his home in Santa Monica, Cal., after a long illness, Nov. 1, 1904.

John Greenbank, M.D. Pennsylvania, 1853, died at his home in Ocean Grove, N. J., December 29, aged 75.

R. Frank Eagon, M.D. Louisville Medical College, 1889, died at his home in Crawford, W. Va., January 2.

George L. Freeman, M.D. Ohio, 1852, of Glen Head, Long Island, N. Y., died December 27, aged 75.

Joseph A. Moke, M.D. Pennsylvania, 1870, died at his home in Crosswicks, N. J., January 1, aged 65.

William F. Stewart, M.D. Illinois, 1890, of Wabash, Ind., died January 8, in Indianapolis.

Book Notice.

DISEASES OF THE LIVER, GALL BLADDER AND BILE DUCTS. By H. D. Rolleston, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London. Fully Illustrated. Including Seven Colored Insert Plates. Cloth. Pp. 794. Price, $6.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

One is prepared to welcome a good book, especially one in English, on diseases of the liver. Budd, Harley and Murchison are out of date; the more recent work of Quincke and Hoppe-Seyler in Nothnagel's series is not entirely satisfactory. Probably books on this subject are not more numerous because there is still so much that is vague and misty in the physiology, pathology, and pathologic chemistry of the liver, and so much that is unsatisfactory in the matter of treatment. But disease of the liver is a something that is real and that has to be reckoned with by every practitioner, and a reliable guide is a necessity; such a guide will be found in Rolleston's work. The book is eminently practical; it is not overbalanced with theory, in fact we may question whether the author has acted wisely in some instances in omitting certain theories. Rolleston's contributions to the subject of the pathology and clinical course of diseases of the liver during the last decade have been numerous and he is known as a careful observer and a clear writer. These characteristics are seen in this book. A due sense of proportion prevails, not only in the space devoted to different diseases but in that devoted to the subheads under the various diseases. He lets no hobby run away with him; he does not fill pages with the exploiting of some pet notion. The case histories that are inserted, and there are many of them, are truly illustrative, concisely given and never obtrusive. The book is up to date. Such conditions as pericarditic pseudocirrhosis, hemachromatosis, Bante's disease, etc., are fully discussed. The author appreciates the difficulties of satisfactorily classifying the cirrhoses; he states the case fairly, including the modern views, gives various classifications, such as those of Adami and the elaborate one of Chauffard, as well as his own, and then sensibly comes back to the old clinical classification of the portal and biliary types of the disease, not by any means exact, but still workable. It is a pleasure to note the recognition of American and French writers. English writers are, of course, freely cited. We have become so accustomed to see in the bibliographies such a long string of German titles that it is a pleasant surprise, almost a shock, to read a list of ten or fifteen names that includes, perhaps, but one or two German ones. We trust our author has not gone too far in this respect. For while our German confrères are extremely aggravating and shortsighted, too, in the way in which they largely ignore work done elsewhere than in Germany, we do not gain by ignoring them; rather do we injure ourselves.

Miscellany.

The Army Medical Service.—The bill to increase the efficiency of the Medical Department of the United States Army has passed the Senate and is now before the House of Representatives. On January 9 the President of the United States sent the following message to Congress:

To the Senate and House of Representatives:

I have, in a former message, stated to the Congress my belief that our Army need not be large, but that it should in every part be brought to the highest point of efficiency. The Secretary of War has called to my attention the fact that the act approved Feb. 2, 1901, which accomplished so much to promote this result, failed to meet the needs of one staff department, in which all of our people are peculiarly interested and of which they have a right to demand a high degree of excellence. I refer to the Medical Department. Not only does a competent medical service by safeguarding the health of the Army contribute greatly to its power, but it gives to the families of the nation a guaranty that their fathers, brothers and sons who are wounded in battle or sicken in the camp shall have not only skilled medical aid, but also that prompt and well ordered attention to all their wants which can come only by an adequate and trained personnel.

I am satisfied that the Medical Corps is much too small for the needs of the present Army and therefore very much too small for its successful expansion in time of war to meet the needs of an enlarged Army, and, in addition, to furnish the volunteer service a certain number of officers trained in medical administration. A bill which, in the opinion of the Secretary of War, of the late Secretary of War, and of the General Staff of the Army, supplies these deficiencies was introduced at the last session of Congress and is now before you. I am also advised that it meets the cordial approval of the medical profession of the country. It provides an organization which, when compared with that of other nations, does not seem to err on the side of excessive liberality, but which is believed to be sufficient. I earnestly recommend its passage by the present Congress. If the Medical Department is left as it is, no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war.

I transmit herewith a memorandum which has been prepared for me by the Surgeon General of the Army, and also the remarks of the former and of the present Secretary of War with reference to this bill.

It is reported to me that the Ordnance Corps is in a position of disadvantage; that its personnel is inadequate to the performance of the duties with which it is charged, and that under existing conditions it is unable to recruit its numbers with officers of the class necessary for the conduct of its very technical work. It is unnecessary for me to lay stress on the desirability of having the design and manufacture of the material with which we are to fight in competent and sufficient hands, as there is no difference of opinion as to the intention of all concerned to have provided a proper supply of weapons, munitions, engines of war, equal in conception and construction to any in the world, and superior in any respects in which by skill and attention we may be able to compass such superiority.

The greatly increased utilization of the exact sciences in ordnance construction requires a larger personnel for their application, and the process of its selection should be severely and continuously discriminating, under conditions offering stimulus sufficient to cause officers of proper capacity, of whom it appears there are plenty, to wish to subject themselves to it A bill embodying the necessary provisions and involving no radical departure from existing methods has been prepared by the War Department. I think it should be passed.

THEODORE ROOSEVELT.

The following is Surgeon-General O'Reilly's memorandum sent to the President Dec. 7, 1904:

The fact that mortality from disease in armies in war time greatly exceeds that from losses in battle is well known. The noneffective rate from sickness is even more greatly in excess of that from wounds. The British army in the Peninsula, in spite of the many bloody battles, lost three times as many men from disease as from wounds. The infant French Republic was saved at Valmy more by the paralysis of Prussian efficiency by ravage of disease than by that rather bloodless victory. General Scott in the Mexican war lost by disease one-third of his effective strength. The loss from disease in the civil war was more than double that from the casualties of battle. The military efficiency of newly raised armies is specially liable to be gravely compromised or even destroyed from this cause.

The three primary duties of the Medical Department are:

1. To preserve the effective strength of armies (military sanitation).
2. To care for the sick and wounded.
3. To conduct the administrative work of the department.

To carry out these objects requires a highly specialized and complex organization and a numerous trained personnel. Military sanitation is now recognized to be a well-marked specialty in medicine of which the average [illegible] ittle more than he does of the methods of [illegible] ministration. The second duty is that for whic [illegible] can be used to advantage, while the first and third must in the main be in the hands of trained medical officers in order to secure efficiency. The standard of what is regarded as a satisfactory degree of efficiency in all of these directions has been greatly raised in late years.

In the Spanish war the country was scandalized by a monthly death rate from disease which rose from 2.15 per thousand in July to 4.08 in August, but fell again to 2.45 in September. During the civil war a higher death rate from disease than the highest maximum above mentioned persisted for many months, reaching in the spring of 1862 a maximum more than double it, without creating half as much popular clamor.

Nor would such occurrences be possible now in civilized warfare as for 600 wounded to lie for more than ten days on the battlefield, as happened after the second battle of Bull Run, on Aug. 30, 1862, when many of the wounded died of starvation. That this was not one of the unavoidable horrors of war, but was, as stated by the Surgeon General in reporting these facts, due to defective medical organization is evidenced by the fact that after the organization of the ambulance service of Letterman such occurrences ceased in the Army of the Potomac. After the great battles of Fredericksburg, Dec. 13, 1862, and Chancellorsville, May 2, 1863, for instance, although the Army was defeated, the field was cleared of wounded without confusion or delay.

The public sentiment of the civilized world therefore demands better organization and higher efficiency for the medical department of armies than at any time heretofore. Other nations, including even so poor a nation as the Japanese, are willing to pay the cost of increased efficiency in the shape of a large and well organized medical service, and it is not to be believed that Congress or the American people will refuse for our Army what is demonstrated to be essential to avoid future failure and insure efficiency. For medical efficiency a certain number of trained medical officers is necessary to direct matters of military sanitation, and, in the words of Mr. Root, "to conduct the administration of the great and complicated medical service." The measure of this number is given by the Secretary of War in his report for this year as follows (p. 25):

"It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the department."

This principle was not recognized in the reorganization of the Army in 1901. The increase in the Medical Department at that time was so inadequate that the proportion of medical officers to the Army at large was not increased, but greatly diminished and was made considerably less than the proportion existing at the beginning of the Spanish war or the civil war—this in spite of the recommendation of the Dodge Commission that the regular corps be increased.

Instead of giving an advocate's discussion of the bill now before Congress I prefer to refer the President to the impartial opinion of the experts of the Third Division of the General Staff as given in their report on it made to the Chief of Staff, which is to be found on pages 6, 7 and 8 of the report of the Senate Military Committee. (Report No. 2420.)

The attention of the President is especially asked to the following points:

The Army is to-day officered for a strength of 100,000 men except the medical departments, which is only sufficient for 42,000.

An adequate increase in the Medical Corps was recommended by the Dodge Commission.

This bill offers, in the words of Secretary Taft, "a complete workable system."

With a less number than asked for, the Medical Department can not perform the duties with which it is charged by Army Regulations in time of peace, or be successfully expanded to meet the increased labors and responsibilities of war.

With a less proportion in the higher grades it can not attract properly qualified candidates to fill the vacancies created.

The Reserve Corps constitutes an eligible list of competent civil physicians who will reinforce the regular Medical Corps in time of war or other emergency.

The increase of cost is, when the enlargement is completed four years hence, only a little over 4 per cent. above the present cost of the Medical Corps, while next year it will be actually diminished under this act.

The increase of efficiency is as 320 is to 450, or about 40 per cent.

The bill has received the rigid scrutiny of the General Staff and the approval of Secretary Root, of Secretary Taft, of the Military Committee of the Senate, and of the American Medical Association.

Respectfully submitted, R. M. O'Reilly,
Surgeon General.

Mr. Bassett of New York, in discussing this subject, said that some attention should be given to the life-saving departments of the Army as well as to the life-destroying departments. He stated that in the civil war 80 per cent. of those who died succumbed to preventable disease. In the Spanish-American war, on the American side, thirteen men died from preventable disease for every one who died in battle or from wounds received in battle. He then compared this with the illustration furnished by the Japanese army and quoted Major Seaman, who studied the Japanese methods in the field, as follows:

> Too much praise can not be bestowed on the medical departments of the army and navy for their splendid preparatory work in this war. The Japanese are the first to recognize the true value of an army medical corps. Care of the sick and wounded consumes but a small part of the time. The solution of the greater problem, preserving the health and fighting value of the army in the field—by preventing disease, by careful supervision of the smallest details of subsisting, clothing, and sheltering the units—is their first and most important duty. Their capacity for detail is something phenomenal; nothing seems too small to escape their vigilance or too tedious to weary their patience, and everywhere—in the field with the scouts or in the base hospitals at home—the one great prevailing idea is the prevention of disease. The medical officer is omnipresent. You will find him in countless places where in an American or British army he has no place. He is as much at the front as in the rear. He is with the first screen of scouts with his microscope and chemicals, testing and labeling wells so the army to follow shall drink no contaminated water.

Mr. Bassett went on to say that in the American Army not only is the Medical Corps insufficient, but they lack authority. A great many physicians who enter the Army, especially in time of war, are on temporary contract. They are called "contract doctors," and it has been held in a court-martial that they do not have authority, not being commissioned officers, and yet those who are regularly commissioned in the Army are so few in number that they can not do the sanitary work in advance that is done in the Japanese army; they can not do the chemical and biologic work that would save thousands of lives, and the result is that preventable diseases have wiped out a far greater number than the bullets of the enemy.

Mr. Bassett believes that the Medical Corps must have sufficient numbers and sufficient authority to enforce their orders in regard to sanitary regulations.

THE CHRISTIAN HOSPITAL FRAUD.

Report by the Medicolegal Committee of the Chicago Medical Society.

Decision Against the Christian Hospital and N. News Wood for Contempt of Court.

On May 17, 1903, Dr. J. B. Murphy came to the office of the Medicolegal Committee with a package of letters received from physicians of the West and Southwest. The writers of these letters had received announcements from the Christian Hospital, bearing Dr. Murphy's name and picture. They were indignant that Dr. Murphy should be a party to this scheme and they so wrote—sometimes in kindness and sometimes in hot, abusing anger. In the lot was a letter on the hospital paper bearing Murphy's picture and his name, asking him to join the staff; this was dated May 12. It was apparent that many of the circulars had been issued prior to May 12, since many replies were written Murphy under date of May 12, or earlier. Dr. Murphy asked the help of the Committee. We began an investigation. The following is a synopsis of the main points covered:

The plan of procedure of the Christian Hospital originated with A. C. Probert. Its details were executed by N. News Wood. Probert spent his earlier life in New Jersey. His first operations in the West were in northern Wisconsin. He did not then claim to be a physician. He had business careers in Ashland and vicinity, and finally landed in the Wisconsin penitentiary at Waupun. On his release he came to Chicago. We have no certain knowledge of his business until he appeared as Dr. Probert of St. Luke's Hospital of Niles, Michigan. That institution placed Dr. Senn's name on its literature. Dr. Senn publicly disclaimed the relation. Use was then made of the name of Dr. Kinsman of Boston, who published an affidavit setting forth that the use of his name was without authority. There were some complications as to women, notice of which appeared in the Chicago daily papers, and Chas. W. H. B. Granville left for the Southwest. Public sentiment and the Michigan authorities were too much for St. Luke's of Niles, under the Probert-Granville management. Probert went a few miles over the line to Bourbon, Ind. He carried a letter from a Niles citizen since then arrested. He opened a bank at Bourbon. In a short time the bank failed. In 1903 indictments against Probert were still in existence in that county. A former editor of a Bourbon paper gave us the above facts. Probert told our informant that he intended coming to Chicago to work the physicians with a scheme similar to that of St. Luke's of Niles. He came to Chicago and went in with Wood on the Christian Hospital proposition. In June, 1903, he was arrested by the postal authorities for using the mails to defraud. His picture in prison garb, with a sketch of his career, was in the Chicago papers. In the same month he opened a bank at Eau Claire, Michigan, a small town near Chicago, supplied by the Chicago papers. In October, 1903 the Chicago papers contained an account of the suspension of this bank. In November, the United States courts found him guilty and fined him $500. He then went to New Mexico. In the spring of 1904 the Chicago papers announced the failure of his bank in New Mexico. He is said to be in Michigan now. Dr. Wood we first hear of as having a lying-in hospital at Des Moines, Iowa. Later he had another institution at Omaha. We were given a list of people, three of whom lived in Chicago, and the remainder in Iowa and Nebraska, who could tell us of the conduct of these institutions. None of these people responded to inquiries. Dr. Wood came to Chicago about 1892. He opened a hospital on La Salle avenue. The steps in the evolution of the Christian Hospital are set forth clearly in Judge Holdom's decision.

On Monday, May 18, Dr. Murphy and this committee conferred with State's Attorney Deneen. It was agreed that the

United States could get evidence more easily than could the State. We then conferred with United States Inspector Stewart. His men went to work at once. Evidence was gathered until June 1, when Wood and Probert were arrested. On June 2, Inspector Ketcham told us that the government had enough evidence. On June 3, Judge Holdom enjoined the institution and its officers from alleging that Dr. Murphy was, or ever had been, connected with the Christian Hospital, also from selling any more certificates bearing his name or picture, or from sending out advertisements similar to those formerly used. In March, 1904, Dr. Murphy received a large number of complaints that the Christian Hospital was again using his name. Especially kind letters were written by Drs. Crysler of Yazoo City, Miss., Murphy of Enterprise, Miss., and Persons of Montgomery, Ala. These letters came principally from the South. It was apparent, then, to all of us, that denials such as those of Drs. Senn, Kinsman, Delafield, Deaver, and Bernays, and even the more active course of Dr. Murphy and our committee during 1903, were ineffective. Mr. Dacy, the very able attorney of the Society, who had handled the case originally, was ill, so Dr. Murphy called in his attorney, Judge Geo. W. Brown. Again we started gathering information. We got track of some fifty men, more or less, who had secured certificates since the issuing of the injunction. These were distributed as follows: Pennsylvania, 8; Indian Territory, 1; Florida, 1; Bermuda, 1; West Virginia, 3; Ohio, 6; Alabama, 2; Indiana, 2; Michigan, 1; Tennessee, 1; California, 1; Missouri, 4; New York, 2; Kansas, 3; Kentucky, 2; Oklahoma, 1; Oregon, 1; Maine, 1; North Dakota, 1; Iowa, 1; Louisiana, 3; South Carolina, 1; Maryland, 1; California, 1; Texas, 2.

Men were sent out gathering affidavits from these purchasers. On the strength of these affidavits and accompanying certificates, Wood was brought into court.

The main defense centered around two points. The first was that Dr. Murphy's proper action was for libel, and that this court could not enjoin a libel. If you know that a man has been and still is libeling you, you can sue him for damages. but you can not enjoin him. The distinction made by Judge Holdom between a libel and a libelous action that is resulting in fraud is made clear to any layman.

The second was that no man can be restrained from using an uncopyrighted picture. Around most schools and hospitals pictures of physicians, clinics, etc., are usually on sale. If not copyrighted, any of these can be used to embellish anything, with this limitation, says Judge Holdom, that such use is improper if this use can be interpreted as meaning that anybody therein is endorsing or is in any way responsible for the institution making use of the picture.

As to the question of willfulness, Judge Holdom cited their use of the golden rule—the claim to effect Christian and humanitarian cure through the use of all means known to skilled physicians and surgeons, aided by magnetic and mental healers, etc., and their lack of consistency therewith; the misstatements embodied in a letter sent out after the injunction issued—but this is better read at first hand.

DECISION OF JUDGE HOLDOM.—(ORALLY.)

Murphy vs. Christian Hospital, N. News Wood, et al.

Proceeding for contempt for violation of injunctional order.

The environment of this case is somewhat peculiar. An institution known as the "Chicago Store" was first incorporated with a quarter of a million dollars of capital stock, upon its face, quite a business enterprise. Thereafter the corporate name was changed to "The Christian Medical Dispensary and Humane Hospital;" and then, on June 23, 1902, the latter name was changed to the "Christian Hospital."

We find that the "Christian Hospital," according to its designation in its literature, adopted as its beacon light the golden rule, "Do unto others as you would have others do unto you;" but from the nature of its peculiar methods, and the inducements held out to the unsophisticated and confiding doctors in the rural districts, it appeared in fact to conduct its affairs by the "David Harum" golden rule: "To do others before they have a chance to do you."

It is not necessary for me to pass upon the professional ethical condition which environed Dr. Wood and the "Christian Hospital," or his assistants, but the evidence shows that an eminent surgeon of this community, Dr. John B. Murphy, without his knowledge or consent, was subjected to the mortification of having his name, in facsimile of his signature, with his degrees following his name, together with a photograph of himself apparently about to engage in the performance of a surgical operation in a clinic, attached to the so-called certificate of membership in the "Christian Hospital."

Some criticism has been made of Dr. Murphy because he did not at once repudiate the action of Dr. Wood in connecting him, without warrant, with the "Christian Hospital." The letter of May 12, 1903, was the first intimation Dr. Murphy had of the liberties which had been taken with his name and professional standing. At the same time, Dr. Murphy received a very scathing letter from a Dallas, Texas, physician, which was inspired by the receipt of Dr. Wood's "Christian Hospital" literature. It was a very just and righteous expression of that doctor's indignation at Dr. Murphy for having, as it appeared to him from the literature received, deserted that high pedestal which he had theretofore occupied among his brethren in the medical profession, and stooped to connect himself in that way with this "Christian Hospital," which made propositions so unethical in its literature in an attempt to induce these rural doctors to become members of the hospital staff and receive the certificates which it offered for sale on a rising scale of from $5 to $25. When Dr. Murphy was confronted with what Dr. Wood had so audaciously done, and the unheard-of liberties he had taken with his name, it is not doing any violence to presume that Dr. Murphy was impressed with the utter futility of any attempt to do anything with a person of Wood's character, to head off further evil consequences to himself flowing from that which Dr. Wood had so unwarrantably done; and it is not at all surprising that instead of approaching Dr. Wood, he appealed at once to his lawyer to appeal to the courts to prevent further trouble for himself and his good name, and to prevent the sick and physically infirm from being further deceived through the alluring literature of Dr. Wood, or to entrust themselves to the so-called "Christian Hospital." It is apparent and self-evident from the facts in evidence that Dr. Wood had not connected with him or the Christian Hospital surgeons or physicians of the standing of Dr. Murphy, or any of the other gentlemen, whose names are so well known in medicine and whose pictures appear with Dr. Murphy in the clinic portrayed upon the certificates in evidence. It follows, therefore, that Dr. Murphy is excused and exonerated from any obligation to appeal to Dr. Wood before he filed this bill. The law requires no one to do a useless act before appealing to the law to right a wrong. I have no doubt that in the circumstances of this case, this court can give the relief that is prayed here, so far as to prevent the issuing of certificates with the name of Dr. Murphy, and in connection with it the picture of him about to engage in an operation in a clinic. However, the picture not being copyrighted, and having been given to the world free, any one may use it, but no one may, however, use it in connection with Dr. Murphy's name, so that the public may be deceived, defrauded or misled, and it is part of the province of a court of equity to prevent such frauds from being perpetuated.

Even assuming that this bill may not be sufficiently verified under the statute, still that would not make void the injunctional order, notwithstanding this court might, on proper application, dissolve the injunction. The court having jurisdiction of the parties and the subject matter, it is immaterial, howsoever erroneous the injunctional order may be; while it is in force, it must be obeyed, and he who willfully disregards it must pay the penalty of such rash and unlawful conduct.

What I may now say in relation to the evidential facts of this case is simply for the purpose of seeing where credence should be given, and who and what statements, if any, should be discredited, and in ascertaining the truth.

It is admitted that the first time Dr. Murphy knew of the unlawful use of his name was through the letter of Dr. Wood of May 12, 1903; that prior thereto Wood had no personal communication whatever with Dr. Murphy, nor was there any relationship between them, medically or otherwise. There is no evidence tending to show that Dr. Wood had any business, in any way, with Dr. Murphy, or that they operated together surgically at any time or place; or that Dr. Murphy was ever at the Christian Hospital, or even had a speaking acquaintance with Dr. Wood; so that no relationship existed between them which could, by the most liberal construction, lead Dr. Wood to the conclusion that he was at liberty, or might reasonably presume to take the liberty, to use Dr. Murphy's name and reputation in connection with the Christian Hospital as he did.

Now, Dr. Wood claims that the only authority for his actions rests on the statement of one Dr. Arthur C. Probert that Dr. Murphy had told him that his name might be so used. Probert appears as the vice-president of the Christian Hospital. Is such statement alleged to have been made by Probert borne out by the proofs? In that letter of May 12, Wood did not say anything about any arrangement or understanding with Dr. Probert. Wood simply told him in this letter to Murphy, that the Board of Directors had elected him, Murphy, to that position, and wanted him to accept of it in writing. There was not anything said in that letter, or at any other time, except upon this hearing, about Dr. Probert.

Now, Dr. Probert seems to be a mythical personage. He appears as vice-president of the Christian Hospital, and if he does exist——about which there is room for much doubt—he certainly must be, if he is entitled to the long string of degrees appearing after his name from regular collegiate institutions, a very learned gentleman; and a gentleman of so much learning as these degrees tend to indicate, would naturally be known, not only to many institutions, but to men of scholarly attainments and of high professional standing in this community, and he certainly could not be lost without creating considerable public notoriety. If Dr. Probert is not a myth, it is strange indeed that he has not been heard from; that his affidavit has not been tendered here, or that he has not come into court in person and by his testimony justify Dr. Wood in the use at least of Dr. Murphy's name. We do not hear from Dr. Probert at all, and now Dr. Wood disclaims any knowledge as to his whereabouts; neither does he vouchsafe any information as to the time or place where he last knew of him, or on what pretense he left this jurisdiction. The position of Dr. Wood is untenable; his representations in relation thereto glaringly false; his contentions are bald and shallow pretenses, which lack even the semblance of verity.

Has Dr. Wood or the Christian Hospital violated, willfully, the injunction of this court? Has Dr. Wood done any act in an endeavor to disclaim the right to do what he has done? To disclaim the verity of that which he has held out to these unsuspecting and confiding physicians all over this country? Not at all. Did he, by one word or insinuation, intimate to those gentlemen that Dr. John B. Murphy had never been connected with the Christian Hospital, or with him, and that the use of Murphy's name was absolutely and entirely unwarranted, and that he had presumed, without authority from Murphy, that he would be glad to be connected with the Christian Hospital, and therefore assumed to use his name? Not a word of truthful exposition escaped him. The only interpretation of which Wood's correspondence is susceptible, is, that through some disagreement between himself and Dr. Murphy, some disagreement that had arisen after and during the time of his assumed connection with the Christian Hospital, their relationship had been discontinued, and that in the future Dr. Murphy would cease to be what he had been to the Christian Hospital in the past.

I am unable to discover from these letters any willingness or desire on the part of Dr. Wood to either right the wrong he had done or to obey the injunction of this court. It does not appear from his actions that he was endeavoring to comply with or obey the injunction of the court, but that he was in fact endeavoring, in his own way, to evade the effect of that injunction, to evade the effect of it upon the persons to whom he wrote, by concealing from them the fact that this court had enjoined him from using the name of Dr. Murphy because he had assumed so to do, without warrant, and against law and right. I thoroughly agree with what Judge Brown has in effect said, viz.: that if there was no evidence in this record other than the letters which Wood wrote to Haynes and Clifford and those various other country medical men, that they would be sufficient in themselves to at least show the intentional and willful endeavor to evade the effect of this injunction. Dr. Wood was, by these letters, trying to induce the rural physicians to say that Dr. Murphy's name was not the magnet which drew them to his institution. It is self evident they were induced to join the Christian Hospital staff by the false representations and inducements held out by Dr. Wood, for it is self-evident the Christian Hospital, being very young, it had a reputation to establish, and nobody realized that probably more than Dr. Wood did, and it may well be, that such knowledge was one of the influences affecting his actions, and which prompted him to make this unwarranted use of Dr. Murphy's name; and there is abundant evidence here that certificates have been issued since the service of this injunction of June 3, 1903, upon Wood and the hospital, with the name of Dr. Murphy and with his picture in the surgical clinic, and I am of the opinion that the correspondence with Clifford and others was in effect a reissue of the certificates then in their hands. I am free to say that what appears to have been an attempt to obliterate the name of Dr. Murphy was simply a subterfuge, and it is too plain to admit of denial that the name of Dr. Murphy was more apparent after the attempted obliteration than it really was before, because the mark being so lightly drawn through it, instead of obliterating it, simply accentuated and attracted more particular attention to Dr. Murphy's name than if the mark had not been placed there, and Dr. Wood can not be excused because he claims to have delegated the task of erasing Dr. Murphys name to another.

Aside from Dr. Murphy, the public have a right to be protected, and if these things can be done, it seems to me that the law would be lacking in one of its great attributes if it was impotent to remedy so great a wrong. Can a man's professional reputation be slandered and outraged and the law afford no adequate relief? If there be a remedy—and surely there is—and the injury be irreparable at common law, is a court of equity without power to grant relief? I doubt not its beneficent arm will be outstretched to stay the hand that smites and shield the object of the assault from further harm. I base this conclusion on the law on broader grounds than taken by counsel for respondents—that is aside from the invasion of the rights of Dr. Murphy—on the broad humanitarian ground that the sick and afflicted will be protected from being deceived and misled, and perchance be lured to their death by the false representations that at the Christian Hospital they will find, not Dr. Wood, but Dr. Murphy, and other men of his caliber to minister to their diseased and afflicted bodies. Such charlatans as Dr. Wood, and such conglomerate affiliation of quackery and baser schools of medicine to be found in practice at the Christian Hospital, will not only be condemned, but restrained by law from pirating on the public when fraud and deceit are the alluring factors—and the court is asked to do so.

Now, Dr. Wood had no business to ignore this injunction. He had no business to go on in his own way and do just as he might see fit. The least he could have done after he was served with this injunctional order, if he desired to proceed further in the matter with the business in which he had started, was to have consulted a lawyer, and it is not to his credit that he neither saw a lawyer nor came to the court asking to have this injunction dissolved. But without the advice of counsel, he went his own way and kept along in the same illegal path, with only a subterfuge of a pretense to comply with the mandate of this court, and inserted the name of Dr. Somers as a pretended substitute for that of Dr. Murphy, while so far as can be seen, Somer's name appeared to be added, not Murphy's taken out.

I am more embarrassed in relation to the punishment which should be meted out to Dr. Wood and the Christian Hospital than I am about the other branch of the case. I am inclined to think, from what appears on this record, Dr. Wood is a dangerous man to any community. He is not free from suspicion, and a grave one, that the manner in which the name of Dr. Murphy appears is in law a forgery. A criminal act. It purports to be Dr. Murphy's signature, but I am not here to punish him for forging Dr. Murphy's name, but I may take *into consideration* the moral turpitude of Dr. Wood in determining the degree of punishment which should be meted out to him for his willful violation of the injunctional order.

I will fine the Christian Hospital two hundred and fifty ($250) dollars, and I will fine Dr. Wood one hundred ($100) dollars, and sentence him to ten days' imprisonment in the county jail, and it is so ordered.

We will not close without some personal references. Dr. Murphy has expended a large sum of money in accumulating evidence needed to rid himself, the profession, and the people from this menace. Our thanks are also due to Drs. Deaver and Taylor of Philadelphia, Wiggins of New York, McCormack and Wathen of Kentucky, Dinnen and Bruggeman of Indiana, Blanchard of Wisconsin, Sheldon of Iowa, beside a large number of others to whom we are just as grateful. Signed, W. A. Evans, H. A. Moyer, C. S. Bacon, Medicolegal Committee, Chicago Medical Society.

Treatment of Hernia.—Dr. J. M. Banister of the First Reserve Hospital, Manila, P. I., calls our attention to two errors which occurred in his manuscript and which also appeared in the publication of the article, "The Radical Treatment of Nonstrangulated Inguinal Hernia from the Standpoint of the Modern Surgeon," in The Journal, Oct. 22, 1904. On page 1226, in the remarks on Kocher's operation, the sentence should read: " . . . owing to the proximity of such important structures as the *external*" (not internal, as printed) "iliac vessels . . . ." In the last paragraph on the same page the name of Dr. Dawbarn of New York is erroneously given as "Dr. Newbern."

The Books of the Year 1904.—Those who were *interested* in the summary of the new books published during the year 1904 which we gave in The Journal, January 7, page 53, will be further interested in the following from the *Medical Book News*. Its summary, unlike our own, includes new editions and republications. "Were any reader of this magazine, possessing $1,489.58, desirous of expending it in the purchase of new books for his library, every standard American and English work on medicine in each of its various branches, and on dentistry, pharmacy, chemistry and the allied sciences, published during the current year, could be included. This would mean the acquisition of 575 titles, containing 193,094 pages, with 40,689 illustrations, many in colors. Reducing the different values to a like basis, the cost of each octavo book of 335 pages and 70 illustrations would cost an even $2.59." In this connection we may remark that the list which we published was so nearly complete that our attention has been called to only one book as having been omitted from our list. That one is "Semeiology and Diagnosis of Diseases of Children." N. Filatov and Frank B. Earle, 2 vol., $7, Cleveland Press, Ogden avenue and Lincoln street, Chicago.

State Boards of Registration.

COMING EXAMINATIONS.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Officers of Ohio Board.—The Ohio State Board of Medical Registration and Examination organized January 3 for the year by the election of the following officers: President, S. B. McGarvan, Cadiz; vice-president, H. H. Baxter, Cleveland; secretary, Frank Winders, Columbus; treasurer, S. M. Sherman, Columbus.

West Virginia 1904 Reports.—Dr. H. A. Barber, secretary of the State Board of Health of West Virginia, reports the examinations held at Clarksburg, Charleston and Wheeling, in April, July and November, respectively. At the oral and written examination, held at Charleston, April 12-14, the number of subjects examined in at each *examination* was 9; total number of questions asked, 120, and percentage required to pass, 75. The total number examined was 63, 33 of whom were undergraduates. Of the graduates 28 passed and 2 failed, and of the undergraduates 28 passed and 5 failed.

PASSED.

College.	Year Grad.	Per Cent.
Coll. of P. and S., Baltimore	(1887)	75
Illinois Med. Coll.	(1899)	76
Med. Coll. of Virginia (1901) 81.	(1903)	88, 88
Univ .of the South	(1903)	87
Miami Med. Coll. (1902) 81, 81;	(1878)	81
Univ. of New York	(1897)	95
Eclectic Med. Inst.	(1890)	75

Western University of Pa.	(1900)	87
Univ. of Berlin (Germany)	(1901)	86
Jefferson Med. Coll.	(1903)	87
Maryland Med. Coll (1903) 84,	(1901)	85, 85
Univ. Coll. of Med	(1903)	82, 82
Univ. of Maryland	(1900)	87
Univ. of Virginia (1901) 80,	(1900)	88
Meharry Med. Coll	(1904)	87
Johns Hopkins Med. Coll	(1899)	89
Howard Med. Coll	(1903)	87
Southern Homeo. Med. Coll	(1904)	75
Shaw Univ.	(1902)	75
Toronto Univ.	(1903)	89

At the examination held at Charleston, July 19-21, the total number examined was 104, 36 of whom were undergraduates. Of the graduates 59 passed and 9 failed, and of the undergraduates 21 passed and 15 failed.

PASSED.

College.	Year Grad.	Per Cent.
Med. Coll. of Virginia (1904) 87, 87, 87 ·	(1897,	82
Univ. of Maryland, (1904) the grade of 86 was reached by four; (1903) 90, (1901) 80.		
Univ. of the South, (1903) 86, (1904) the grade of 80 was reached by three, 84 by one.		
Kentucky School of Med (1901) 76,	(1901)	75
Univ. Coll. of Med., (1904) the grade of 87 was reached by three, (1903) 83.		
Pulte Med. Coll.	(1904)	79
Coll. of P. and S., Baltimore, (1904) the grade of 84 was reached by six, (1903) 79.		
Maryland Med. Coll., (1904) the grade of 83 was reached by eight.		
Kentucky Univ. Med. Coll., (1904) the grade of 79 was reached by three.		
Baltimore Med. Coll., (1904) the grade of 85 was reached by five.		
North Carolina Med. Coll	(1904)	85
Western Pa. Med. Coll	(1904)	90
Hospital Coll. of Med	(1902)	80
Columbian Univ. Med. School	(1903)	87
Jefferson Med. Coll	(1904)	85
Starling Med. Coll	(1904)	80, 80
Univ. of Louisville	(1904)	79
Johns Hopkins Med. Coll	(1902)	86
Ohio Med. Coll	(1899)	79
Howard Univ.	(1903)	80
Lexington National Coll	(1900)	77

At the examination held at Wheeling, November 22-24, the total number examined was 35, 7 of whom were undergraduates. Of the graduates 22 passed and 6 failed, and of the undergraduates 5 passed and 2 failed.

PASSED.

College.	Year Grad.	Per Cent.
Univ. of Maryland (1902) 94,	(1904)	91
Detroit Coll. of Med	(1904)	91, 91
Coll. of P. and S., Baltimore	(1904)	87
Univ. Coll. of Med (1904) 91, 91;	(1901)	84
Maryland Med. Coll (1902) 88,	(1904)	80, 80
Ohio Med. Univ	(1904)	78, 78
Howard Univ.	(1904)	86, 86
Memphis Hosp. Med. Coll	(1902)	80
Med. Coll. of Virginia. (1902) 90, (1903) 91, (1904) the grade of 87 was reached by three.		
Jefferson Med. Coll	(1903)	91

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Jan. 14, 1905:

Stiles, Henry R., asst.-surgeon, ordered to report to Major William H. Arthur, surgeon, president examining board, Jan. 17, 1905, Washington, D. C., for examination for promotion.

Reilly, John J., asst.-surgeon, left Jackson Barracks, Louisiana, en route to Army and Navy General Hospital, Hot Springs, Ark., for treatment.

Ebert, R. G., surgeon, left Vancouver Barracks, Washington, with artillery en route to Fort D. A. Russell, Wyoming.

Morse, A. W., asst.-surgeon, ordered to accompany field artillery to San Francisco and then return to post.

Chidester, W. C., asst.-surgeon, left Fort Lawton, Washington, on ten days' leave of absence.

Coffey, Albion McD., contract surgeon, ordered from Joplin, Mo., to Fort Warden, Washington, for duty.

Porter, Elias H., contract surgeon, granted an extension of his leave of absence to Jan. 29, 1905

Casaday, George H., dental surgeon, granted leave of absence for three months, with permission to visit the United States.

Freeman, Charles E., contract surgeon, granted leave of absence to include Jan. 31, 1905.

Foulkes, Bruce, contract surgeon, arrived at San Francisco January 2 for one month's leave of absence.

Truax, Jesse P., contract surgeon, left Fort Ward, Washington, January 5 for temporary duty at Fort Lawton, Washington.

Sparremberger, Frederick H., contract surgeon, left Fort Mott, New Jersey, January 7 on leave of absence for ten days.

Treuholtz, Clarence A., contract surgeon, returned to duty at the Army General Hospital, Fort Bayard, New Mexico, January 5 from leave of absence.

Wall, Francis M., contract surgeon, returned to duty at Fort Oglethorp, Georgia, January 9 from leave of absence.

McCall, James H., contract surgeon, left Fort Moultrie, South Carolina, January 10 for temporary duty at Key West Barracks, Florida.

Burr, Rollin T., contract surgeon, returned to duty January 10 at Fort Rodman, Mass., from leave of absence.

Hayes, Melville A., contract surgeon, left Washington, D. C., January 11 for duty at Vancouver Barracks, Washington.

Lemmon, Robert, contract surgeon, arrived, January 11, at Fort Terry, N. Y., for temporary duty.

Oliver, Robert T., examining and supervising dental surgeon, arrived at West Point, N. Y., January 14 for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 14, 1905:

Young, R. M., asst.-surgeon, resignation accepted to take effect Jan. 31, 1905.

Taylor, J. S., P. A. surgeon, detached from the *Relief* and ordered to the *Ohio*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 11, 1905:

White, J. H., surgeon, granted leave of absence for six days from January 17.

Wertenbaker, C. F., surgeon, to report at Washington, D. C., for special temporary duty.

Blue, Rupert, P. A. surgeon, detailed as inspector of unserviceable property at the Marine Hospital, San Francisco.

Fricks, L. D., P. A. surgeon, relieved from duty at LaGuayra, Venezuela, and directed to proceed to New York and report arrival by wire.

Korn, W. A., P. A., surgeon, Bureau letter of Dec. 27, 1904, granting leave of absence for seven days, amended so that said leave shall be for four days only.

Atiles, Pedro del Vallo, A. A. surgeon, granted leave of absence for seven days from Dec. 26, 1904, under Paragraph 210 of the Regulations.

Edwards, J. W., A. A. surgeon, granted leave of absence for twelve days from Dec. 20, 1904, and three days from Jan. 1, 1905.

Jackson, J. M., Jr., A. A. surgeon, Department letter of Dec. 8, 1904, amended so as to grant leave of absence for nineteen days instead of thirty days from Nov. 26, 1904.

Tuttle, Jay, A. A. surgeon, granted leave of absence for thirty days from January 9.

Wetmore, W. O., A. A. surgeon, granted leave of absence for ten days from January 4.

Stearns, W. L., pharmacist, to proceed to Washington, D. C., for special temporary duty.

Gibson, F. L., pharmacist, leave of absence granted for thirty days from Jan. 1, 1905, amended to read ten days from Jan. 1, 1905. Relieved from duty at Honolulu, T. H., and directed to proceed to San Francisco and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist Chas. Slough.

Slough, Chas., pharmacist, on being relieved from duty at San Francisco by Pharmacist F. L. Gibson, to proceed to Honolulu, T. H., and report to chief quarantine officer for assignment to duty.

CASUALTY

Hanrath, F. R., pharmacist, died at Cleveland, Ohio, Jan. 7, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Jan. 13, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Jan. 1-7, 2 cases.

Illinois: Chicago, Jan. 1-7, 16 cases; Peoria, Dec. 1-31, 7 cases.

Louisiana: New Orleans, Jan. 1-7, 5 cases, 3 imported.

Massachusetts: Jan. 1-7, Everett, 2 cases; Hyde Park, 1 case.

Missouri: St. Louis, Dec. 25-Jan. 7, 35 cases, 6 deaths.

New Jersey: Camden, Jan. 1-7, 1 case.

Ohio: Cincinnati, Jan. 1-7, 7 cases.

South Carolina: Jan. 1-7, Charleston, 3 cases; Greenville, 6 cases, 1 death.

Tennessee: Nashville, Jan. 1-7, 6 cases.

Wisconsin: Milwaukee, Jan. 1-7, 3 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Dec. 11-24, 24 cases.

Brazil: Bahia, Nov. 29-Dec. 10, 27 cases, 1 death; Rio de Janeiro, Nov. 28-Dec. 4, 296 cases, 108 deaths.

Belgium: Brussels, Dec. 18-24, 1 death.

China: Shanghai, Nov. 13-26, 71 deaths.

France: Paris, Dec. 18 24, 17 cases.

Great Britain: Dec. 18-24, London, 9 cases; Newcastle-on-Tyne, 7 cases; Nottingham, 3 cases; South Shields, 3 cases.

India: Bombay, Dec. 7-13, 19 deaths.

Panama: Dec. 26-Jan. 1, Colon, 1 case; Panama, 1 case.

Russia: Moscow, Dec. 11-17, 7 cases; St. Petersburg, Dec. 18-24, 6 cases, 5 deaths.

Turkey: Constantinople, Dec. 19-25, 8 deaths.

YELLOW FEVER—UNITED STATES.

Texas: Galveston, Dec. 31, 2 cases from S. S. *Horatio* from Para, via Barbados.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, Nov. 28-Dec. 11, 2 cases, 1 death.

Cuba: Habana, Jan. 6, 3 cases, 2 from Austrian vessel *Dora*, from La Guaira and Colon.

Mexico: Dec. 25-31, Coatzacoalcos, 1 case; Juchitan, 1 case; Vera Cruz, 1 case, 1 death.

Panama: Panama, Dec. 25-31, 2 cases.

CHOLERA.

India: Bombay, Dec. 7-13, 2 deaths; Calcutta, Dec. 4-10, 72 deaths.

Russian Empire: Nov. 23-29, Astrachan District, 6 cases; Samara District, 162 cases; Saratov, 40 cases, 19 deaths; Trans-Caspian Territory and Central Asia, Serachs, 27 cases, 20 deaths; Jelisavetpol District, Nov. 22-26, 32 cases · .. Caucasia, Baku, Nov. 14-23, 29 cases, 10 deaths; Batum, Dec. 1-7, 3 cases; Erivan, Nov. 23-29, 1,933 cases, 661 deaths.

PLAGUE.

Arabia: Dec. 1-16, Crater, 47 cases, 47 deaths; Maalla, 2 cases, 2 deaths; Hedjuff (hospitals), 2 cases, 2 deaths; Tawahi, 1 case, 1 death; Shaikh Othman, 3 cases, 4 deaths.

Egypt: Port Said, Dec. 3-10, 1 case, 1 death; Tukh District, Nov. 27-Dec. 10, 3 cases, 3 deaths.

Great Britain: London, Nov. 30, 1 case, from S. S. *Weybridge* from the Rio de la Plata.

India: Bombay, Dec. 7-13, 72 deaths; Calcutta, Dec. 4-10, 12 deaths; Karachi, Dec. 5-11, 27 cases, 22 deaths.

Straits Settlements: Singapore, Dec. 20-26, 1 case, 1 death.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

(Concluded from page 153.)

The Manufacture and Use of Tin Splints.

Dr. Arthur T. Mann, Minneapolis, made a plea for the general utility of tin splints. He pointed out the simple equipment necessary to make them; also the ease of making the splints and patterns for them. He described several tin appliances which are useful, among them a device for regaining flexion and extension of the elbow joint after fractures and dislocations. This article will be published in The Journal later.

Syncytioma Malignum.

Dr. H. C. Crowell, Kansas City, Mo., reported a case and gave a detailed pathologic report of the specimen.

Dr. Archibald MacLaren reported a case of what he had supposed to be a soft edematous fibroid, but after operation the case proved to be one of syncytioma malignum.

Fractures of the Tarsal Bones.

Dr. Daniel N. Eisendrath, Chicago, called attention to the surgical anatomy of these bones and to the mechanism of fractures. He reported six cases on which he had operated, and presented the following conclusions:

(1) The astragalus and os calcis bear the entire weight of the body. (2) They are most frequently broken in falls from a height directly on the feet (compression variety), or by tearing off of a portion of one of the bones, either when the heel is fixed or sudden supination or pronation, or in forcible dorsal flexion of the foot. (3) Early diagnosis, on account of the danger of sepsis from secondary skin necrosis, is of great importance. (4) If there is no displacement of fragments, treat the case by a cast for six weeks, with early massage. If displacement should threaten necrosis of skin, convert into an open fracture, and either remove the fragment or suture it.

Ptosis of the Abdominal and Pelvic Organs.

Dr. R. C. Coffee, Portland, Ore., drew the following conclusions:

(1) The peritoneum is attached firmly not only to the diaphragm, but loosely by all its outer surface to the abdominal and pelvic walls by means of loose connective tissue, which allows it to move freely, but holds it always in contact. This connective tissue is much increased around the attachment of the supports of each organ. The irritation underneath and back of the peritoneum is followed by an exudate which fixes it immovably to the abdominal wall. This exudate is soon displaced by an increase of normal connective tissue sufficient to meet the demands. The peritoneum itself is but slightly elastic, its seeming elasticity being due to the elasticity of the subperitoneal connective tissue. (2) Two peritoneal surfaces brought together and held firmly in an aseptic state blend and become one membrane. If suppuration or other disturbance occurs, blending does not take place, but inflammatory adhesions are formed. The former is permanent, while the latter is transitory and will be absorbed generally. This differentiation is all-important. (3) The uterus is suspended entirely by its peritoneum and connective tissue. (4) The so-called true ligaments are not such, but muscles, and therefore perform the same function as all other muscular fibers in the animal organism, which is intermittent contraction, but never constant action. Their function is to sustain the normal poise or balance of the uterus during the changing positions of the body. (5) Whatever may be the cause, the condition existing is a stretching of either or both the peritoneum and connective tissue. The condition may be local or general, and may involve the support of one, more than one, or all the abdominal and pelvic organs. (6) Treatment in a general way will be the shortening of the peritoneum at the points at fault by some method of plication and blending, or by bringing the peritoneum back to its normal contact with the abdominal wall. (7) The method (he described) for suspending the liver is, I believe, almost ideal theoretically, and so far in my experience clinically and experimentally, in that it shortens the normal suspensory ligament, and supplements it by extending the ligament to one or both lobes by blending of peritoneum. (8) None of the operations for gastroptosis so far is theoretically or practically ideal for all cases. The hammock operation, stitching the omentum to the abdominal wall, is best suited to those cases due to adhesions holding the stomach out of place by its omentum, in which the condition accompanies operations on the lower abdomen or pelvis only. No discomfort has been observed by any of my patients. Posterior gastroenterostomy is the best operation for those cases due to dilation or pyloric obstruction of any kind, and is all that is necessary, as it is held by its attachment high up and well back to the transverse meso-colon.

Appendicitis in Women.

Dr. Archibald MacLaren, St. Paul, Minn., stated that the only safe advice to both the patient and the physician is that the appendix should be removed in the early hours of every acute attack, and especially in the first attacks, when the symptoms last six hours. On the other hand, he does not believe that every case of appendicitis should be operated on as soon as the diagnosis is made, because the surgeon frequently does not see these cases until from the third to the sixth day. The favorable time has now passed, and some of these cases are in such a bad condition that the operation itself may be enough to take away the only remaining chance of recovery. He has done 422 appendectomies. In the first 241 there were 72 suppurative cases. Of these 42 were men and 30 were women. During the same time he removed appendices showing chronic inflammatory changes 153 times in women, and only 17 times in men. He does not believe that chronic appendicitis is as frequent in the male as in the female, but it probably is not twice as frequent in the latter sex. It is, he believes, only a curious accident that he has seen proportionately so many acute cases and so very few chronic cases in men.

Management of Hospitals in Large Cities.

Dr. D. S. Fairchild, Des Moines, Iowa, said that the problems involved in the management of hospitals in the smaller cities are difficult and complicated, growing out of two important facts: (1) The supposed self-interest of individual members of the medical profession; (2) the lack of experience and knowledge on the part of boards of management. Public hospitals are generally of three kinds, as determined by the auspices under which they are organized and in part supported: (a) Hospitals under the auspices of some church; (b) hospitals under the auspices of some society, and (c) city hospitals supported by public taxation. The method of appointment of physicians to hospitals is liable to abuse only when piety or church zeal is mistaken for competency. Dr. Fairchild discussed the management of hospitals at great length.

Arthrotomy.

Dr. E. Wyllys Andrews, Chicago, described a new method for treating old dislocations of the shoulder joint, and after mentioning the steps of the procedure at some length, he presented the following conclusions:

(1) It must be considered established that great force is never justifiable in old shoulder dislocations. (2) Few cases can be left unreduced, on account of pain and pressure symptoms, on the brachial plexus. (3) Resection is satisfactory, but not ideal or wholly safe. (4) Arthrotomy by the old incisions is tedious, and has never been widely practiced. (5) Arthrotomy by the author's method is simplified and made quicker and safe. It would possibly be as safe as resection, and much more ideal in results.

Curettage and Puerperal Sepsis.

Dr. C. E. Ruth, Keokuk, Iowa, discussed the etiology of puerperal sepsis, the kinds of infection, prevention and dangers, and then spoke of curettage, drainage and hysterectomy in such cases.

Our Duty to the United States Army and to Its Medical Corps.

Dr. Donald Macrae, Jr., Council Bluffs, Iowa, pointed out the importance of having a more efficient medical corps in the United States Army.

A resolution was introduced and unanimously adopted, respectfully petitioning President Roosevelt to direct the military authorities to provide a field medical organization for our army at least equal in all respects to the best that exists in any army, and which will meet the approval of military sanitarians generally, to the end that the sick and wounded in future wars may receive adequate care and attention.

The secretary was instructed to forward a copy of this resolution to President Roosevelt at once.

Dr. G. G. Eitel, Minneapolis, read a paper on "Removal of the Covering of the Ovaries in Ovarian Dysmenorrhea," which is abstracted in The Journal, page 247.

The Diagnosis of Early Tubal Pregnancy.

Dr. William E. Ground, Superior, Wis., bases his deductions on the histories and the gross appearance of the uterus and appendages at the time of operation in 28 cases. He is firmly convinced that ample pathology was present to cause the arrest of the fecundated ovum in the tube. Five of his cases were in primiparæ, who gave a history of painful menstruation and leucorrhea. Thirteen cases gave a history of sterility of three or more years' duration. The remaining 12 cases occurred in parous women, who had borne children or had been pregnant in less than three years. Many of these women gave unmistakable evidence of pre-existing pelvic disease. One primipara had been married three years, one five and another eleven years before tubal conception occurred. Two cases occurred in unmarried women, one of whom had had a criminal abortion. Complications arose necessitating abdominal section. An unruptured tube containing a six weeks' fetus was found. Another case, known to have had chronic appendicitis, was taken with sudden, severe pain in the right lower abdomen, followed by considerable shock, but she soon rallied. Menstrual irregularities were denied. Tenderness was present rather low in the iliac fossa. The uterus was enlarged, and a slight bloody discharge came from the vagina. There was an ill-defined tumor to the right of the uterus. The abdomen was opened and found to contain blood clots and bloody serum. The right tube was ruptured on its dorsum at about the middle, but the fetus was still in the tube. Chronic appendicitis was also present, and the appendix was removed. Two cases had small fibroids, and one had an ovarian cyst as large as an orange on the opposite side.

CLEVELAND ACADEMY OF MEDICINE.

Meeting of the Clinical and Pathologic Section, held Dec. 2, 1904.

Dr. C. A. Hamann in the Chair.

Hereditary Muscular Dystrophy.

Dr. Walter G. Stern presented cases of muscular dystrophy of the hereditary type occurring in the same family, girls of 15 and 12. They showed marked shortening of the tendo Achilles, causing them to walk on their tiptoes. The great-grandmother walked on her toes, the grandmother had spasms of the calf, and the grand aunt had contractions of the trunk and extremities. Two uncles were also affected, one so badly that he had to walk on his hands and knees. The father of the children had severe pes equinus. The muscles of the calf were wasted and contracted, and the muscles of the trunk so affected that when he picked up objects he was obliged to crawl up his thighs to regain his equilibrium. The family consists of three daughters and two sons. One of the sons died and before death was so afflicted that he had to crawl. The other son is only 7 and shows, as yet, no signs of the disease. The oldest of the girls was very much wasted, the contractions being almost general, the younger ones showing lesser grades. The pes equinus was so marked in the second daughter that tenotomy had been resorted to, with improvement in her condition.

Suppurative Pericarditis and Chylous Ascites.

Dr. C. F. Hoover cited a case in which the triangular area of dullness in the back was absent and discussed the differential diagnosis of such cases from pneumonia and other conditions. He also presented the notes of a case of true chylous ascites, in which chemical analysis showed the presence of actual chyle, thus distinguishing it from the many cases of ascites in which the fluid is chyliform, but contains no chyle, being due rather to other conditions, such as malignant growths not involving the lacteals. The two kinds of fluid may closely resemble each other, but the chemical analysis will always differentiate. The patient is still alive and has a mass centrally placed in the abdominal cavity, but so far no diagnosis of the lesion has been made.

Typhoid Necrosis of Pharynx.

Dr. F. C. Herrick described a case in which a large area of necrosis with extensive sloughing followed a case of typhoid, the ulceration being so deep as to expose the bone. The case recovered under appropriate treatment.

BOSTON MEDICAL LIBRARY ASSOCIATION.

Meeting of the Surgical Section, held Nov. 30, 1904.

Dr. F. B. Harrington in the Chair.

Enteroptosis and Nephroptosis.

Dr. M. P. Smithwick emphasized the importance of considering ptosis of the viscera in nephroptosis. In 68 cases studied there was ptosis of the right kidney in all, and in 20 per cent. of the left as well. In 62 per cent. the stomach was depressed; in 7 per cent. the liver, and in 80 per cent. of the 34 cases examined for it there was displacement of the uterus, usually extreme retroversion. Nearly all had neuropathic tendencies, and he believes that this chances to be the point of least resistance. Many of these showed no symptoms whatever of the ptosis. In no case was there a disturbance of the renal function, and in only one case was there any dragging sensation.

Dr. W. H. Smith gave his experience in treatment with abdominal supporters. Unpadded abdominal bands proved failures except in cases associated with gastroptosis. But an accurately fitted corset-like belt, applied while the patient is lying down, will hold the intestines up against the liver and prevent the kidney from falling. Intelligent co-operation on the part of the patient and a proper fit are indispensable.

Dr. F. G. Balch reported the actual results at the Massachusetts General Hospital following operative treatment from 1890 to 1904. Of 92 cases treated 86 were females, 6 males; 61 married, 25 single; in 33 pregnancy was assigned by the patients as the starting point of her trouble and in 10 trauma. The patients remained in the hospital from 15 to 45 days, an average of 28 days. Seventeen had other operations done at the same time. Eight cases were found septic. Twenty-two had urinary symptoms before operation. Final results were ascertained in 41 cases. Twenty-eight were relieved, 13 not relieved. Balch considered operations of doubtful value in nervous cases and would try supporters first. Long rest and proper care are necessary for the success of the operation.

Dr. J. H. Crandon presented the records of the Boston City Hospital. During the last 10 years 17 cases were operated on. Their ages varied from 20 to 59 years. All were women. The trouble had lasted from five months to 13 years. Five patients reported themselves as cured, 1 better but not well, 2 have had a recurrence, and 2 were cured only after a subsequent operation for gallstones. No record was obtained in 7.

Dr. H. D. Chadwick said that two symptoms call for operation: first, a burning sensation along the ileo-hypogastric nerve, and second, distress and restlessness after going to bed. Apparatus adds to the discomfort. He has operated on 20 cases with but three failures. In two of these the symptoms continued, and the third did not stay fixed.

Dr. A. T. Cabot suggested that, perhaps, the vein of the right kidney being shorter than the artery is why it is occluded more quickly. This suggestion appeared to be borne out by three cases of profuse hematuria seen by him. Early operation is important; late cases are often not benefited. He advised fixation with an insoluble suture, such as silk, putting the stitches only through the capsule. He did not approve of Edebohls' method which, he believes, causes pain. The kidney must be fixed so that the liver can not press on it.

Dr. Paul Thorndike examined 272 women, selected at random, for floating kidney, and found it present in 112 cases. None of these women had any symptoms attributable to the ptosis. He advised care in choosing operative cases, but preferred operation to wearing a belt.

Dr. A. K. Stone said that some cases seem to have inherited the trouble. He has noted a great variety of symptoms. Even though a kidney can be felt it may not be the cause of the trouble. He operates only when the displacement is the cause of all the symptoms. He has had good results from the use of apparatus, but it must be fitted accurately.

Dr. W. B. Conant makes a lateral incision and uses absorbable sutures, but does not split the capsule. He enters the peritoneal cavity and explores all other organs, treating them, if necessary. He fastens the kidney on a shelf between the muscles. A truss may be useful if pressure is rightly directed.

Dr. R. C. Larrabee thought that these cases are usually neurasthenics and that they suffer from crises of pain. Ptosis of the kidney, he said, is a very common anomaly and rarely productive of any harm. A corset-like bandage may tide over an attack and thus obviate the necessity of an operation.

Dr. G. W. Gay approved of Osler's dictum, "If the patient does not know of the ptosis, do nothing."

Dr. F. B. Lund said ptosis of the kidney is usually a part of a general visceral ptosis. Operation is safe, but any abdominal support will give relief.

Dr. D. H. Craig said that a belt acts like a splint and that massage is necessary if the abdominal muscles are to fulfill their function.

Dr. C. P. Putnam has obtained good results from manual manipulation, the patient standing upright. Congestion is relieved and the pain ceases.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.

CHICAGO.

(Continued from page 65.)

INDIAN SUMMER CLIMATE.

The hot season in India begins with the month of April and is expected to end with the month of October. It is said that April and May are the hottest and that November, December and January are the coolest months of the year. On the way from Tuticorin to Madras the shade and night temperature rose to 98 F. and the temperature in the sun to 119 F. Soon after leaving Madras rain set in and continued without interruption until we reached Calcutta and during the first day I remained in that city. The atmosphere was saturated with humidity and added greatly to the discomforts and actual suffering from heat, although the temperature at night and in the shade did not exceed 98 F. The air was not disturbed by the slightest breeze, it was motionless, paralyzed, stifling. Breathing required an effort and the sweat poured from the surface even when at rest.

> " 'Heat, ma'am,' I said; 'it was so dreadful here that I found there was nothing left for it but to take off my flesh and sit in my bones.' "—Sydney Smith.

How often did I envy those natives, with their lithe, slender, fatless bodies and their long arms and legs and flexible joints. In squatting, the easiest resting position for these natives, the legs fold on themselves like a jackknife. The agony I experienced from a combination of humidity, heat, and the lazy, sleeping air during the two nights and days I spent in Calcutta would be difficult, yes, impossible, to describe; bathed in sweat, panting for breath, with only partial relief from ice and soda and from vigorous pulling of the bedroom punkah throughout the night, by men employed for that purpose.

A word concerning the punkah puller. Two men or two women, or one man and one woman are hired for the night, and they receive 8 cents each for their easy work and loss of sleep. One night I had two men at the ropes; about midnight the to and fro motions of the punkah became less and less and finally almost came to a standstill. I went to the door and found one of them sound asleep and the other barely awake. The slight jerks were directed by the spinal cord exclusively; the brain was sleeping. A few sharp words brought life to men and punkah.

I was made to comprehend by a trying experience the meaning of

> "A dem'd, damp, moist, unpleasant body."—Dickens.

I spent a whole forenoon in visiting the Calcutta Medical College and large government hospital connected with it, under the guidance of Major Drury, I.M.S., principal of the school. We inspected the laboratories, walked from ward to ward, climbed stairs innumerable and, although an attendant with an enormous fan accompanied us and gave us the full benefit of the useful article, I soon felt the sweat running in streams down my legs and into my shoes and, in spite of frequent wiping of face and neck, the collar soon wilted into a shapeless rag. It was then it occurred to me:

> "Ay, now am I in Arden; the more fool I.
> When I was at home I was in a good place, but
> travelers must be content."—Shakespeare.

For once I was glad when the visit was at an end and the courteous major took me to his private apartments, where a most luxurious breakfast was served and where my torturing thirst was quenched with ice and claret. As soon as we arrived in the room, the major suggested that I should make myself more comfortable by removing the coat. I did so most willingly and then discovered to what extent the clothing had become saturated by the profuse sweating. Judged by the clothing, and found near the Ganges, the suspicion would have been well founded that I had been rescued a few moments ago from drowning in the sacred river. Without rain and sweating the clothing would become moist from the excessive humidity of the atmosphere. What discomfort and annoyance this creates. Try under such circumstances to fetch in a hurry from the wet trousers pocket with a sweating hand a coin for a tip and you will find that the pocket becomes a veritable trap for the hand, which is with difficulty extricated without everting the pocket and scattering the coins.

It seemed to me strange that the temperature increased as I traveled north, but in leaving the coast the humidity gradually diminished, and in the interior the air was comparatively dry. The thermometer I carried with me registered 132 F.; on several occasions the mercury reached the maximum limit in the sun and would undoubtedly have gone higher had there been additional space. This high temperature was registered at Agra, Delhi and Jaipur. The night and shade temperature on the whole trip from Calcutta to Bombay ranged between 92 to 105 F. The Bombay weather was very much like that of Calcutta, rain and humidity, but the temperature was a little lower and occasional breezes diminished the sweating and relieved the intense sense of heat.

All through India the absence of a breeze made the heat distressing. Some days about 4 o'clock in the afternoon a slight agitation of the atmosphere would begin; enough to shake slightly the leaves of the omnipresent nim trees and would bring with it a decided relief, but even this slight attempt on the part of the atmosphere to counteract the effect of the burning sun was always of short duration. It was interesting to observe how the animals, wild and domestic, behaved during the hottest part of the day. The water buffalo is a great bather and he is not particular about the nature of the bath; if he has any preference, it is for the mud bath. In passing the many water and mud holes along the line of the railroad, I have often seen through the car window two long, flat, reclining horns and a pair of sleepy or closed eyes just above the level of the mud or water, and in looking closer might distinguish back of them the ridge of the spine, the balance of the body being completely immersed. The buffalo has three objects in view when he goes bathing:

To rid himself for the time being of pestering insects, to obtain relief from the intense heat and to obtain a soothing rest after his liberation from the hard, primitive yoke. Sometimes we saw a herd of these animals closely packed in a small pool or mud hole. It is a peaceable, tolerant animal, so that even when standing space is scarce, these animals of burden make room for each other without the slightest indication of selfishness. I fancy that the water buffalo prefers mud to water for his bath, for it leaves a thick layer of mud on the surface of his body, which soon dries into a crust, a further protection against flies and mosquitoes. The bullock, sheep and goats seek the shade of trees during the hottest part of the day, and if the trees are few and the animals numerous, every inch of it is made useful, and, as the shade moves, the family of animals shifts in the same direction to protect themselves against the scorching rays of the sun.

The proud peacock, so numerous all through India, but more especially in the eastern part, forgets for a time his vanity when the sun is in a position to send down on poor India its most scorching rays. He folds and hangs his gaudy tail and sneaks away into the shade of a clump of shrubs or cactus hedge and lowers his microcephalic head with half closed eyes in obedience to his majesty of the day. India swarms with turtle doves and the telegraph wires are their favorite perch. In many stretches of the country from one to a dozen of these tidy, innocent birds can be seen perched on a wire between two telegraph posts as the train rushes by. When the temperature rises to 130 F. and more, the wires become too hot for their tiny red feet and they are driven by the heat to find protection in the shade.

Man appears to possess the greatest resisting power against heat. The coolie, bareheaded or with a few pads of cotton cloth wrapped about his head in the form of a turban, can be seen at work any time of the day, no matter what the thermometer may say. From early morning until late at night he toils in the fields, plowing, sowing, harvesting, or dipping water, as the case may be, to earn his scanty livelihood. In many parts of India the month of September is the most trying one. My guide at Delhi called it the "sickness month," and informed me that during the month few escaped fever, which would last from one to several days. I presume a mild form of malaria.

The insects were not so troublesome as I expected At Jaipur the flies were numerous and aggressive. In the hotel at Calcutta I found my bed screened with mosquito bar. As the evening was extremely sultry and as I heard no mosquito music, I removed it. Next morning I found the uncovered part of my body checkered with ugly mosquito bites, the noiseless minute had deceived me and wrought the mischief during the few snatches of sleep that came to me that awful night. I am glad that I have seen India at its worst, so far as the climate is concerned, and that I have escaped with my life and my health unimpaired, but I will never advise any of my friends to go through a similar experience, as it involves great suffering and is attended by no inconsiderable immediate and remote risk to life.

THE PEOPLE.

India has, approximately, 300,000,000 inhabitants, four to one of the United States. The population is a very mixed one, composed of Hindus, Afghans, Mohammedans, Parsees, Thibetans, and other Asiatic races, Europeans and a mixture of Europeans and Asiatics, called here Eurasians, in Ceylon half-castes. The original East Indians were an Aryan race, which came from Central Asia by way of the Cabul river. The present Hindu race represents Aryan and non-Aryan elements. The typical Hindu is above average size, fine, erect, slender physique, long, very thin legs and arms, straight black hair, beard of the same color, light or heavy. The color of the skin varies from yellow to coal black. Many of the men are handsome; others, especially the common coolies, are often not only ugly but absolutely hideous, their faces approaching the appearance of a monkey rather than that of a man. The women are homely almost without exception; much smaller than the men and very spare even during old age.

The handsomest men and women are found among the Parsees, the fire worshipers, who came from Persia to India centuries ago. They are a thrifty people, fond of dress. The men wear a very strange head covering, which does not answer to the description of either a hat or cap. Imagine a black piece of stovepipe a foot in length, speckled with minute yellow dots, and turn in the top obliquely and you have as complete a description of the headdress of the Parsee as can be given. The women are dressed in flowing silk of vivid colors, and display a wealth of jewels attached to ears, neck, fingers and wrists. Bombay is the center of the Parsee population, about 100,000 in number. Their principal temple and ghastly graveyard are located here.

Social distinction is drawn in India in more definite lines than in any other country. It is a land of castes. There are more than 1,000 of these castes, which have very little in common with each other. The Brahmins or priests take the first rank, the warriors the second, and the merchants the third; then follow the different professions and trades. The caste of warriors is the only one which is permitted to hunt and to eat meat. There is never an intermarriage between a high caste man or woman with a lower caste woman or man, but in exceptional cases a promotion from a lower to a higher caste with all privileges belonging to such advancement may take place. The lower castes make themselves known by stripes and dots of all colors and designs on the forehead or face. A study of these distinctive marks would prove a very thankless task to the foreigner owing to the endless number of castes.

The religious life in India is as mixed as its population. In 1891 there were 207,731,727 Brahma followers, 7,131,361 Buddhists, 57,321,164 Mohammedans, and only 2,284,380 Christians, a rather discouraging showing for the millions and millions of dollars that have been spent in efforts to christianize the people. The slow progress of christianity in India is due, at least in part, to the character of the people. The complicated class distinction is one of the greatest obstacles. The high caste Hindu prides himself on the antiquity of his religion. He is firmly convinced that:

> "Antiquity, the nearer it was to its divine origin, perhaps perceived more clearly what things were true."—Cicero.

A high-caste Hindu, a very learned man, a magistrate in one of the eastern districts of India, expressed himself to me on this subject about as follows: "My religion is the oldest in the world. It was old before the religion of the Christians was known. I spent five years in England. I made careful observations and in consequence came to the conclusion that my people are better people than the people I observed in England. Crime is more common in England than in India. Why should I change my religion? The essence of our religion consists in leading a useful, pure life. We believe in progression in spiritual as well as in worldly affairs. As the muscle is strengthened by exercise, so constant efforts to reach a higher spiritual existence will improve progressively the spiritual part of men until perfection is reached. We do not believe in perpetual punishment after death, but in a gradual elevation until nirvana, a state of perfection, is reached. Missionaries can not change the religious views of high caste Hindus. Then, too, the manner of living and the way in which the missionaries approach the low caste Hindus are not calculated to excite their interest or to gain their confidence." This is what the Hindu said.

In conversation with me a Roman Catholic priest who came to India 26 years ago said: "We can do nothing with the adults in the way of converting them. The people appreciate our works of charity and our efforts to educate their children. We must plant the seed of true religion in the hearts of the children, where it will grow, but their parents are out of our reach. The high caste, educated Hindus have their fixed religious ideas from which they can not be diverted, and the low castes are in the firm grasp of the Brahmin and the Buddhist priests."

The natives are suspicious of the Europeans and are naturally proud and not easily approached. The poorest of the poor possess an inborn pride and manifest a spirit of reserve entirely unknown among the South Sea Islanders. There is no "Alloha" or "Talofa" greeting for the stranger in India. The faces are stern, the look shy, the bearing defiant and smiles few unless they are provoked by a liberal tip. The converted natives may conform on the surface with the teachings of the church to which they belong, but in their inner life they retain much of what they have been taught, and what they practiced before they changed their religious views; we can say of them as well as of their heathen brethren:

> "Some are good, some are middling, the greater part are bad."—Martialis.

And

> "Habit has produced the custom."—Ovidius.

Missionary work has done more good in supplying the starving with food, the sick with nursing and with medical treatment, the poor with clothing and in the education of children than in the christianization of the people. The door to the heart of the Hindu is charity.

The greatest virtue of the coolie is his willingness to work. It is the coolie who cultivates the fields, loads and unloads vessels and cars, cleans the streets, empties the cesspools and performs all other menial work, for wages which range from 8 to 32 cents a day. He has held his place in the competition for cheap labor against Chinese and Japanese, and against cheap workmen from other parts of the world. He meets the demand for labor in India and the low wages with which he is content has so far effectually prevented outside competition, and owing to the dense population and the severe struggle for existence which are in evidence everywhere, precludes the idea of a possible betterment of the condition of the laboring classes. The coolie has no desire to accumulate wealth; he is satisfied if by hard toil he is able to keep the wolf from the door. His needs are few, and what many a Chicago family spends every day for newspapers will support himself, his wife and children. From experience he can say:

> "Ye immortal gods, men know not how great a revenue economy is."—Cicero.

INDIAN ART.

India is a great art museum (Fig. 1, page 207). The ancient palaces, temples and tombs are the silent witnesses of the exquisite workmanship of native artists, who lived and worked here centuries before Solomon's temple was built. The masonry of many of these remnants of ancient architecture is the wonder of the leaders of the craft to-day (Fig. 2, page 208). The size of the stones, the cutting, placing them in positions, the fitting them together with such accuracy that cement of any kind was superfluous, in other instances the fitting together with metallic substances, are lost arts. The designs of the mosaics, the sculpturing and the wood carvings, the inlaid work are marvels of skill, patience and perseverance. The ancient artist and artisan made use of noble material on which to stamp indelibly the proofs of his skill. In short, nature supplies the material, art works on it.

> "Art can effect nothing without material, yet there is an inherent value in material, though untouched by the art of man. Perfection of art is superior to the best material."—Quintilianus.

Symmetry was above everything else the object of the ancient architect, mosaics, columns and arches were the details in carrying out his designs. The two pieces of architecture and design that impressed me most were the royal tomb,
Th ing air during th nares and the Cave Temple in Elephanta
would be difficult, y the former noted for its exquisite beauty,
panting for breath, at age and wonderful mural statues, cut
soda and from vigo to which allusion will again be made
throughout the night, regret that the influential and rich
A word concerning th rest in the preservation and main-
women, or one man and rt, which after all, are the great
and they receive 8 cents e ds of visitors to India annually.
of sleep. One night I had t s are now being built in imita-
night the to and fro motions road. Painters from Italy and France do the decorating. Plush and silk covered furniture is brought from Europe, and the old beautifully carved chairs, tables and other articles of furniture are stored away, sold for a song or given away to make room for things that are not adapted to the climate and that can make no pretention to art. It is very fortunate that Lord Curzon has taken the necessary steps to preserve Indian art by the erection of a great museum of art in Calcutta, in blessed memory of the late Empress Victoria, where the most valuable and interesting specimens will find a permanent resting place for the benefit of future generations of natives and visitors.

It is high time that in the three great cities of Calcutta, Bombay and Madras, associations of Indian art should be founded for the purpose of collecting and preserving specimens of ancient Indian art, and with the object of encouraging the native artists of to-day by patronizing them instead of importing furniture from foreign countries and imitating the artless style of the buildings of the Europeans. For the benefit of natives as well as of travelers, India should remain specifically Indian in dress, customs, agriculture, and especially in art.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of a "Cold."

In speaking of the treatment of a "common cold" Dr. Leonard Williams, in the *Clinical Journal*, London, uses this expression for a catarrhal condition affecting the nasopharynx, larynx or the larger bronchial tubes, in that cold or chill is supposed to be the principal factor in the causation. However, the author thinks that cold has nothing to do with the causation of the condition, but that it is due to irritation of the air passages from bacterial invasion.

The therapeutics of this condition consists in aborting it by washing the microbes out of the nasopharynx by douching and gargling. After filling the nasal douche with an antiseptic solution, the patient should be directed to introduce the solution into one nostril and at the same time keep the mouth open. In this way the solution will flow out of the other nostril instead of into the mouth. If the mouth is kept closed it will find its way into the larynx and esophagus. Therefore, the patient should always be directed to keep the mouth open when using the nasal douche. The author recommends that the solution should be warm and of a temperature not below 98 F. He prefers zinc sulphocarbolate in weak solution as *follows:*

℞. Zinci sulphocarbolatis	gr. vi	40
Aquæ dest. q. s. ad	℥iii	90

M. Sig.: To be used, warm, in the nasal douche.

A nasal catarrh, as suggested by the author, may be the beginning of whooping cough, and in this treatment the best measures are to be carried out to cut short the attack and to prevent grave sequelæ. So important is this form of treatment in the early stage of whooping cough that it is grave neglect when it is even delayed until the whoop has begun.

The following combination is recommended as a very efficient antiseptic used as a nasal douche:

℞. Acidi boracici	ʒii	8
Or		
Acidi carbolici	gr. x	65
Glycerini	℥ss	15
Infusi rosæ acidi q. s. ad	℥viii	240

M. Sig.: To be used as a nasal douche.

[Infusum rosæ acidum is composed of acid infusion of roses (red rose petals), ʒvi (25.) and dilute sulphuric acid ʒiii (12.): aqua destilata Oii (1,000).]

When the irritation is lower down in the air passages, in the larynx, the treatment can not be carried out so successfully. The most successful treatment here consists in the use of antiseptic oils such as eucalyptus, vaporized and inhaled frequently. In addition to this local treatment, mild purgatives should be given to keep the bowels well open, and a hot bath or hot wet pack given to increase the elimination from the skin. If headache is present, with a slight rise in temperature, a moderate dose of opium at bedtime is the best remedy. When administered early in influenza, the author regards opium as almost specific, and in ordinary colds its effect on the inflamed mucous membrane and irritated nervous system assists greatly in relieving the symptoms.

As a tonic after a cold no preparation is more beneficial than quinin, and it is recommended prescribed in the liquid form, as the powder is not so reliable in its action and has a greater tendency to disturb the stomach. When once there is failure in aborting the attack and active inflammation of the mucous membrane has set in, with a feeling of constriction, accompanied by a dry, hard cough, the proper treatment then consists in the administration of sedative or depressing expectorants and not stimulating expectorants. For this purpose the following combination is recommended:

℞.	Vini antimonii			
	Vini ipecacuanhæ, āā	m.x		65
	Spts. etheris nitrosi	m. xxx	2	
	Liq. ammon. acetatis	ʒii	8	
	Syr. limonis	ʒi	4	
	Mist. amygdalæ q. s. ad	℥i	30	

M. Sig.: To be taken at one dose and repeated in four hours, or half the quantity every two hours.

The foregoing combination should not be given when a valvular disease of the heart is present, as ipecacuanha and antimony are both very powerful heart depressants. After the congestion of the mucous membrane has subsided, stimulating expectorants are indicated, and for this purpose the following is recommended:

℞.	Ammon. carb	gr. v		30
	Tinct. camph. co. (B. P.)	m. xx	1	30
	Syr. scillæ	m. xxx	2	
	Syr. tolutani	ʒi	4	
	Infusi senegæ	℥i	30	

M. Sig.: To be taken at one dose and repeated every four hours.

Opium is one of the best remedies in aborting a cold, according to Yeo in *Clinical Ther.*, and it acts best when combined with other diaphoretics. Its effects on the capillary circulation of the respiratory passages is very beneficial in the initial stage of the attack.

In those patients who are inclined to disturbances of liver function opium preparations should be avoided and other diaphoretics substituted as follows:

℞.	Spts. etheris nitrosi	ʒiv	15	
	Liq. ammon. acetatis	℥ii	60	
	Salicini	gr. xl	2	65
	Vini ipecacuanhæ	m. xl	2	65
	Aquæ camphoræ q. s. ad	℥viii	240	

M. Fiat mistura. Sig.: One tablespoonful every four hours.

After the first twenty-four hours quinin is recommended, given in the form of the following effervescing mixture:

℞.	Potass. bicarb.		
	Sodii bicarb., āā	ʒi	4
	Ammonii carb.	ʒss	2
	Syr. aurantii	℥ss	15
	Aquæ q. s. ad	℥viii	240

M. Fiat mistura.

℞.	Quininæ sulph	gr. xii		75
	Pulv. acidi citrici	ʒii	8	
	Sacchari lactis	ʒi	4	

M. et divide in pulv. No. vi. Sig:: One powder dissolved in water and mixed with one-sixth part of the mixture and taken three times a day.

As to local remedies to cut short an attack of coryza the following is recommended in the form of an inhalation:

℞.	Liq. ammon. fortis	ʒi	4
	Spts. vini rectif	ʒii	8
	Acidi carbolici	ʒi	4
	Aquæ	ʒii	8

M. Sig.: A few drops of the mixture to be dropped on absorbent cotton and the vapor inhaled. Or:

℞.	Olei pini	ʒii	8	
	Camphoræ	gr. xl	2	65
	Liq. ammon. fortis	ʒi	4	
	Spts. rectif.	℥i	30	

M. Sig.: To be used in the form of an inhalation.

As an anodyne spray, Shurley recommends the following:

℞.	Mentholi	gr. i		06
	Alcoholis	m. v		30
	Calc. phos. precip	gr. v		30
	Aquæ q. s. ad	℥ii	60	

M. Sig.: To be used as a spray.

As a sedative and astringent the following is of service:

℞.	Cocainæ	gr. v		30
	Alumini	gr. x		65
	Aquæ mentholi	℥i	30	

M. Sig.: To be used locally as a spray.

Kyle recommends in some cases the following oil spray:

℞.	Camphoræ	gr. i		06
	Mentholi	gr. iii		20
	Acidi carbolici	m. ii		12
	Liq. albolene	℥i	30	

M. Sig.: As a spray.

As an inhalant the ordinary tincture benzoini comp. is very efficient; one teaspoonful is floated on a pint of hot water and the vapors inhaled.

Creosote may be used in the same manner, using from ten to fifteen drops (.65-1.00) to a pint of hot water.

Bartholow recommends the following combination:

℞.	Acidi carbolici	ʒi	4
	Tincturæ iodi	℥ss	15

M. Sig.: From ten to fifteen drops in a pint of hot water as an inhalation.

As an abortive remedy the following is of service, but must be prescribed with care:

℞.	Cocainæ hydrochlor.	gr. viii		50
	Mentholi	gr. iv		25
	Salol	gr. lxxv	5	
	Acidi boracici	ʒiv	15	

M. Sig.: A small amount to be insufflated into the nares three or four times daily.

As a spray the following is recommended:

℞.	Mentholi	gr. viii		50
	Camphoræ	gr. v		30
	Liq. petrolati	℥i	30	

M. Sig.: To be used in the atomizer as a spray after thoroughly washing the affected areas. As a vapor to be inhaled the following is recommended:

℞.	Mentholi	ʒiss	6
	Eucalyptol	ʒi	4
	Liq. albolene	℥i	30

M. Sig.: A few drops to be floated on a small amount of water, placed over a spirit lamp and inhaled.

Medicolegal.

Privilege Extends to All Proceedings of Judicial Nature.—The Supreme Court of Michigan says, in the case of Dick vs. Supreme Body of International Congress, that the by-laws of the defendant order provide that its decisions shall be final and binding on every member and his beneficiaries, and that no suit shall be commenced by either against it. In this case use was made, over objection, of an affidavit of a physician, consulted by the insured, to the effect that the latter had been sick prior to a certain date. Did the defendant violate a law which was prescribed for its guidance when it admitted in evidence the affidavit in question? The legislature has said: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may acquire in attending any patient."

Section 10,181, Compiled Laws of Michigan of 1897. The proceedings were in their nature judicial, and there can be no doubt that the legislature had power to prescribe rules which it was the defendant's duty to observe. The statute is one passed for the sole purpose of enabling persons to secure medical aid without betrayal of confidence. Did the legislature, in passing the statute, which prescribes a rule of evidence to be observed in judicial proceedings, intend to permit this confidence to be betrayed in any judicial proceedings which it had the power to regulate? To impute any such intention to the legislature was to assume that it designed to defeat its manifest purpose. There is nothing in the statute to limit its operation to any particular judicial tribunal or to any particular class of judicial proceedings. We must therefore assume that it was intended to extend to all proceedings of a judicial character which the legislature had the power to regulate. This statute was, therefore, violated when the physician's affidavit was used as testimony. When the defendant rejected the plaintiff's claim because of testimony admitted against objection, and which the law in positive terms forbade it to consider, there was a denial of the hearing to which the plaintiff was lawfully entitled. It was the defendant's duty to observe the law. prohibiting the use of this testimony. It was the plaintiff's right to have that law observed. This right and this duty were just as clear and obvious as if they had been expressly stated in the by-law which provided for the hearing of the plaintiff's claim. If such by-law had in express terms provided that this law excluding the physician's affidavit should be observed, no one would for a moment maintain that a determination by the defendant in violation of such provision was binding on the plaintiff. The only distinction between the supposed case and the actual one was this: In the supposed case the provision for the observance of the law was expressed; in the actual case that provision was necessarily implied. This distinction afforded no ground for the application of a different legal principle. The court thinks it may also be said that the statute in question not only forbade the use of the physician's affidavit as testimony, but by necessary implication forbade all judicial tribunals (including the judicial tribunal of the defendant) from determining controversies (at least without the consent of the parties) on such testimony, and that the law would not permit the defendant to retain the unlawful advantage obtained by violating its prohibitions.

Liability for Attendance on Employe and Assistance.—The Supreme Court of Montana says that in the case of Bond vs. Hurd an action brought by a physician, the physician was called to attend a man who had been sent by the party sued to receive some of the latter's horses gathered in a certain county, and was injured in moving the horses by being thrown from one of them, and the plaintiff, finding him seriously injured, called in another physician to assist him. The cause of action included, besides the plaintiff's own account for medical services, an account for medical services rendered by the assistant physician, which had been assigned to him. The only evidence in the record on which agency could possibly rest was that of two telegrams passing between another party and the defendant—a telegram of such other party to the defendant announcing that the man had been hurt, and asking if he would pay the "doctor's bill," and the defendant's telegram in reply, announcing that he would do so. The plaintiff saw this telegraphic answer of the defendant, accepted the offer therein contained, and acted on it. No direct authority was given this other party to employ a physician, so that any agency on his part was implied from the telegrams. However, the court says, no agency could be implied from these telegrams which would authorize this party to delegate to the plaintiff the right to engage the assistance of other physicians, and bind the defendant to liquidate their charges. The agent's power to delegate authority is statutory, in Montana; and the testimony did not disclose that this party referred to lawfully delegated to the plaintiff authority to employ an assistant, within any of the provisions of the statute. The court below took the ground that an emergency arose which justified the employment of the other physician. But, in the opinion of the Supreme Court, neither substituted agency nor emergency was sufficient to hold the defendant liable for the charges of the assistant physician. Presumptively, it says, the plaintiff, when he was employed, assumed that he was a competent physician and capable of taking care of the case for which he was employed without assistance. If he concluded that assistance was required, before procuring the same it was his duty, if he desired to hold the defendant liable for the payment of the bills of an assistant, to communicate with him and obtain his consent to the employment. If he had the right to employ the other physician and make the defendant liable for his services, he would have a like right to employ as many other physicians as he might have deemed necessary and compelled the defendant to have paid them all. Continuing, the court says that there would be very grave doubt as to the liability of the defendant to furnish to the injured man medical assistance on the facts disclosed in the record, aside from the above telegrams. The accident by which the man was injured may have arisen from his own personal negligence, or from a direct violation of the instructions given him by the defendant. The law is by no means settled that an employer is liable to furnish an employe with medical aid under all circumstances. Many courts of last resort have held that even a railroad company is not liable to furnish an employe with medical assistance in case of accident. There the work of the employe is at all time dangerous in its character, and the reason for holding the railroad company liable to furnish such medical assistance in case of accident is much stronger than it is when an individual employs another to perform a service which is not dangerous in itself. After an investigation of authorities, the court is of the opinion that the holding of the Supreme Court of Indiana in matters of this character is the correct one, and should be followed. That court, in the case of the Terre Haute & Indianapolis Railroad Co. vs. McMurray, 98 Ind. 358, seems to place the liability of a railroad company on the ground of emergency and urgent necessity. The case of Terre Haute & Indianapolis Railroad Co. vs. Brown, 107 Ind. 336, is also referred to, and as a much stronger case than the one at bar. And the Supreme Court of Montana says that it is satisfied that the record in this case failed to show any such emergency as authorized the employment of an assistant physician, or that the assistant physician was employed by any one having competent authority to that end.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 7.

1 Behavior of Native Japanese Cattle in Regard to Tuberculosis. S. Kitasato, Tokio, Japan.
2 Is Mortality Necessarily Higher in Tropical Than in Temperate Climates. V. Havard, New York.
3 *Treatment of Cancer of the Cervix Uteri in Advanced Stages. J. Wesley Bovée, Washington.
4 *Experimental Study of Lactic Acid Formation, with Special Reference to the Stomach. E. Paller, New York.
5 Some Observations on Astigmatism. L. L. Doane, Butler, Pa.
6 Fatal Case of Cerebellar Abscess. John H. Allen, Portland, Maine.

3. Treatment of Carcinoma Cervicis Uteri in Advanced Stages.—Given a case of cancer of the cervix uteri, Bovée says that it is necessary to consider the age of the patient, the family history, the apparent duration of the disease, the variety of the disease, the amount of excavation already resulting from the disease, the amount of infiltration of adjacent tissue, the involvement of other, distant parts, and the presence of other physical disabilities that preclude radical surgical operations. Bovée finds that the disease makes more rapid progress in young women than in those far advanced in years, and usually causes death in eighteen months, if left alone. The woman of from 60 to 90 usually will live much longer than the woman of 28. A family history of cancer has a deterring influence regarding radical surgery. Severe surgical operations, involving appreciable mortality rates or a marked degree of additional suffering, should not be employed in the treatment of carcinoma of the uterine cervix, except in very early cases. According to the reports of exhaustive microscopic examinations of the tissues surrounding the uterus in cancer of the cervix, we have no means of knowing before operation that eradication is certain in any given case of the disease; hence, such attempts must be reserved for the very earliest and most promising ones. Bovée believes that the galvanocautery and the curette combined furnish the very best local treatment, so far as influencing the progress of the disease is concerned. The curette should be used carefully but thoroughly, the flow of blood being controlled by either gauze or clamp compression. The galvanocautery is then carefully employed to destroy practically all tissue between the cul-de-sac of Douglas and the bladder and, laterally, between the ureters. Great care should be exercised that bladder, ureters, peritoneum, and rectum be not penetrated nor injured by overheating. Vaginal douches of from .5 to 2 per cent. solution of potassium permanganate he has found the most satisfactory to control a malodorous discharge following the use of the cautery. When the cervix is much infiltrated, the canal obstructed, and the discharges, becoming foul, are confined in the uterus, evacuation and provision for future drainage is the proper treatment.

4. Study of Lactic Acid Formation.—Palier bases the following laws on what takes place in the test tube and, as he believes, also in the stomach: 1. Lactic acid develops in all organic substances containing carbohydrates, whether sugar or starch; and in some substances even while yet in solid form, such as bread and meat; for instance, at certain seasons which are especially favorable to bacterial development, some lactic acid exists already. 2. Lactic acid formation is due in all cases to bacterial development, even the so-called sarcolactic acid of meat. 3. Lactic acid does not give the usual reaction with the usual test when an inorganic acid is also present in sufficient strength. 4. Its development is hindered when there is an antiseptic present such as HCl, for example, but the lactic acid formed before the HCl was added is not destroyed when the latter is added. 5. HCl enters in combination with albuminoids and after some time it does not give the usual reaction, though it was warmed when it was first added; and then bacteria appear and lactic acid begins to form, the latter in substances containing carbohydrates. The bacteria in the stomach bringing about lactic acid formation may be various; but whenever there is alimentary stasis with deficiency of HCl, there is usually found a bacillus, which Palier calls the *Vibrio geniculatus ventriculi*. Experiments have shown him that the presence or absence of lactic acid in the stomach contents can give us some information concerning the condition of that organ, but it is positively not pathognomonic of any particular affection, and any one who will rely much on this for making a diagnosis of cancer, for instance, is surely apt to err, though he may succeed in guessing right a few times. If the acid exists in the stomach contents in small quantity, it is absolutely of no significance; if it is in large quantity it can be easily detected by tests described. So long as the acidity is not very high there is not any alimentary stasis worth mentioning.

Medical News, New York.

January 7.

7 *Disturbances of Digestion in Infants Resulting from the Use of Too High Fat Percentages. L. Emmett Holt, New York.
8 Medical Quacks, Their Methods and Dangers. Champe S. Andrews, New York.
9 Anal Fissure. William M. Beach, Pittsburg, Pa.
10 The Physics and Chemistry of Drug Addiction. Edward C. Hill, Denver.
11 Some Recent Developments in Clinical Pathology. Frederic E. Sondrew, New York.

7. Digestive Disturbances in Infants.—Holt believes that disturbances of digestion resulting from an excess of fat are quite as serious, if not quite so obvious, as those which follow the use of too high proteids. Even those who give special attention to infant feeding have been slow to learn the infant's capacity with respect to the digestion of fat. Others, who have given the question less attention, have fallen into error in one of two ways: In following the formulas of the books instead of using an ordinary milk, with a fat content of 4 per cent., they have substituted rich Jersey milk, containing from 5 to 5.5 per cent. fat, thus giving more fat than was supposed to be given. Or, the mistake is made of intentionally increasing the fat, almost without limit, for the purpose of overcoming chronic constipation. Illustrative cases are cited by Holt, as follows: I. Overfeeding with high fats, rapid increase in weight and progress in development until eight months; then general convulsions, followed later by tetany, laryngismus stridulus, fatty liver (?). Recovery after three months' illness. The points of interest in this case were (1) the long period during which the child bore the high percentage of fat without any apparent disturbance; (2) the severity of the nervous symptoms, the suddenness with which they came on, and their long duration; (3) the prolonged disturbance of the digestion and general nutrition; (4) the large liver, and stools consisting of almost pure fat. II. Prolonged feeding with high fat, notwithstanding which constipation and the development of moderate rickets, followed by acute disturbances of digestion with repeated convulsions. III. Overfeeding with fat; convulsions. Recovery. IV. Habitual vomiting aggravated by high fat; serious gastric catarrh, finally cured by stomach washing. V. Feeding with high fat; eczema, habitual constipation, and finally habitual vomiting. Recovery after the fat was reduced to 3 per cent. Holt advises the examination of all milk to be used for feeding purposes and that the physician, in order to interpret correctly the result of these examinations, learn to think in percentages. Children differ very much in their capacity to digest fats, but there is a limit with each child which can not be exceeded without causing trouble. Holt believes that 4 per cent. of fat is about the limit for the average child. Whenever there are marked symptoms of either gastric or intestinal indigestion, the fat should be reduced much below the normal 3 or 4 per cent.

New York Medical Journal.

January 7.

13 The Proper Scope of Scientific (so-called expert) Testimony in Trials Involving Pharmacologic Questions. (To be concluded.) Solomon Solis-Cohen, Philadelphia.
14 Poisoning by Wood, or Methyl Alcohol and Its Preparations as a Cause of Death and Blindness. A Supplementary Report. Casey A. Wood, Chicago.
15 Treatment Following the Bloodless Reduction of Congenital Hip Dislocation. Dexter D. Ashley, New York, and Frederick Mueller, Chicago.
16 *Conservative Treatment of Affections of the Uterine Annexa. Its Indications and Limitations. George Tucker Harrison, New York.
17 *Management of Pneumonia. Oliver T. Osborne, New Haven, Conn.
18 Hemorrhoids. Samuel G. Gant, N. Y.
19 Pneumococcus Arthritis—Report of a Case. W. H. Witt, Nashville, Tenn. With Pathologic Report. William Litterer, Nashville.

16. Conservative Gynecology.—Harrison's article is a review of, and comment on, conservative gynecologic operations.

17. Management of Pneumonia.—The first consideration in the treatment of pneumonia, says Osborne, should be the establishment of hygienic surroundings, such as a well ventilated room, with plenty of fresh air. That pneumonia can abort itself and that it can also be assisted to abort, may not be frequently, but often is, true. He says: "The profuse sweating caused by a gram of antipyrin, with the action of some brisk purge, followed by morphin to stop the pain, and dry cupping, or, if preferred, a hot poultice, may and often does abort a case of pneumonia." The old treatment with aconite and veratrum viride will probably give the same results, although Osborne prefers not to use these

drugs because of the fear of prolonged cardiac depression. In cases *not aborting, the* nutrition should be sufficient, but not so forced as to cause gastric flatulence or tympanitis. The nutrition should consist of milk, a quart in twenty-four hours, two raw eggs a day, given in bouillon, with coffee or with sherry or brandy, as seems best. Expressed beef juice, which means more than the blood from meat, is one of the best heart muscle stimulants and should be given in ounce doses three or four times a day. For the bowels, use small glycerin enemas, or, if necessary, a small amount of some saline, such as Hunyadi water. Sponging the extremities and the abdomen (not the chest) with tepid water will reduce the temperature. Gentle massage of the extremities promotes excretion of muscle toxins. Insufficient leucocytosis demands some nuclein preparation, such as nucleic acid, in the dose of one grain, three or four times a day, or thymus, in doses of three grains. Osborne favors warm, moist applications, preferably the old flaxseed poultice, bound tightly to the chest during the first stage to mitigate pain and to add to the general comfort of the patient. Such applications should not be allowed to become cold. He doubts the value of such applications in children, believing that they play a part in causing an empyema. In stopping the use of the poultices, it is important to reduce their size gradually and then to put on some warm, dry absorbent cotton. *For the irritating cough*, he prefers codein in small doses so as not to depress the respiratory center. The best stimulant for the bronchial mucous membrane he believes to be ammonium chlorid in small doses, especially if combined with a very small amount of ipecac and put up in an acid preparation, such as syrup of citric acid or dilute phosphoric acid in watery solution. Alcohol should not be relied *on for a long time in cardiac depression*, although for a short time it will tide over such depression and whip up a flagging heart. The dose of whisky should be such as not to give strong odor to the breath, nor to cause a dry skin or a bounding pulse, but just enough to keep the surface of the body warm and the pulse regular. If the heart still fails, and the pulse is bad, not more whisky should be given, but other cardiac stimulants. *Many cases of delirium* are caused by an overdose of alcohol. Nitroglycerin, 1/200 of a grain, every three to six hours, or a hypodermic of 1/100 of a grain, will give a flagging heart a start and allow time to get the action of other drugs. Venesection of a few ounces of blood will relieve cyanosis, jugular throbbing and a laboring right heart. In any stage of the disease, an irregular pulse tension demands strychnin, 1/30 of a grain, every six hours. Caffein, in the form of coffee, should be given from the beginning of pneumonia, at least once a day, in the morning. Coffee is a food and a cardiac stimulant and tonic. Aromatic spirits of ammonia, or camphor water or spirits are good substitutes for caffein. In acute heart failure a hypodermic injection of a saturated solution of camphor in olive oil may be used. Adrenalin or suprarenalin solution 1 to 1,000, may be used in drops on the tongue, 5 drops every fifteen minutes, several times in an emergency, or 5 drops every three hours regularly. Osborne sounds a note of warning against using suprarenal extract in large doses, or for too long a time, as it may cause depression. Oxygen Osborne considers of undoubted value in emergencies, but says that it should not be considered curative. High injections of normal saline solution are indicated when the kidneys are not acting well or the patient not taking sufficient liquid, provided there is no edema anywhere. During convalescence from pneumonia, if the pulse and heart are weak, he favors the use of tincture of strophanthus in from 5 to 8 drop doses every six hours. To combat sleeplessness, chloral and hyoscin should be used. Ergot is indicated to strengthen a weakened circulation. Severe headache may be often well combated by an ice cap or a saline purge. Profuse perspiration should not be discouraged at any time. Osborne gives no opinion as to the value of the serum treatment of pneumonia.

Boston Medical and Surgical Journal.

January 5.

20 A Consideration of Autointoxication and Autoinfection as Cause of Various Mental Disorders. L. V. Briggs, Boston.
21 The Geographic Distribution of Tuberculosis in Boston in 1901-3 as Compared with the Distribution in 1885-90. A. K. Stone and *Alexander M. Wilson*, Boston.
22 *Improved Technic for Finney's Gastroduodenostomy. A. H. Gould, Boston.
23 *Cardiac Collapse During Examination of a Post-Pharyngeal Abscess; Incision; Circulation Re-established and Maintained for Four Hours by Massage of the Heart; Death D. Cheever, Boston.

22. **Finney's Gastroduodenostomy.**—Gould calls attention to the following details, which differ from those in present use in the performance of this operation: 1. The placing of the clamps. 2. Opening of stomach and duodenum; trimming mucous membrane. 3. Omission of guide stitches. A fold of the anterior wall of the stomach, three to four inches *long, is picked* up parallel to and about one-half inch from the greater curvature. The ends of the clamp are not freed, but are pushed up tightly until the *inner jaw* rests against the pyloric sphincter, about one-quarter to one-half inch below the free edge of the fold, where they are made fast. The duodenal clamp encloses a similar fold, as it goes obliquely across the bowel from the free edge to the pylorus, and is pushed up until its inner jaw touches that of the stomach clamp, where it is fastened. The handles of the clamps are brought together, the pyloric angle is thus put on a stretch and incision can be made into any part of the area held by clamps or into the pyloric angle without hemorrhage. The duodenum and stomach folds lie side by side, thus obviating the necessity of guides. The two folds are *fastened together* with a continuous seromuscular stitch beginning at the pyloric angle. The stomach incision is made first and is carried down until the mucous membrane pouches freely between the cut muscular walls. The duodenum is then opened until the mucous membrane of the stomach is met at the pyloric angle. It is occasionally necessary to trim off the mucous membrane from the edges of the duodenal incision. The *pouching of the mucous membrane* is removed from the stomach by cutting with scissors close to one muscular edge, returning on the other side. The completed incision leaves a tongue-like process made up half of gastric and half of *intestinal* walls. The two edges of the tongue are sewed together with a continuous through-and-through stitch, which starts from the apex of the tongue and goes across to its base. At this point it is interrupted with a tie before continuing the suture across over the *front*. When within an inch from the pylorus and the suture over the front is nearly completed, the clamps are loosened to relieve the tension and to allow the last few stitches to be placed. Remove the clamps and bury the suture with a seromuscular stitch. The closing in of the inaccessible pyloric angle is made easy by the introduction of the writer's mattress stitch. The rest of the seromuscular stitch may be continuous.

23. **Cardiac Collapse and Circulation Re-established by Massage of Heart.**—In Cheever's case death was evidently caused by cardiac collapse due to shock, in a patient whose condition of extreme exhaustion made the necessary *manipulations* in preparing to open the abscess a source of grave danger. *Death was not due to suffocation;* there was no inhalation of pus, as the abscess was not evacuated until after effort at resuscitation had been begun. There was *no serious* mechanical obstruction to respiration, hence no *indication for* tracheotomy; but a rubber tube was introduced into the larynx to supplement the usual method of artificial respiration by direct insufflation, which proved very satisfactory. Later, a tracheotomy was done when the onset of rigor mortis made the reinsertion of the tube through the mouth difficult. Cardiac massage by rhythmical pressure at the rate of 60 to the minute over the third, fourth and fifth left costal cartilages was continued with the *artificial respiration* for four and one-half hours. It seemed that the circulation of the blood was restored and maintained and that the blood was fairly well *oxygenated*. The body warmth

was artificially kept up, stimulants supplied and efforts made to raise the blood pressure, but without avail.

Medical Record, New York.

January 7.

24 *The Healing of Tuberculosis (Clinical Features). Herbert Maxon King, Liberty, N. Y.
25 *The Art of Eating Properly (Euphagia) and the Harm of Eating Too Rapidly and Too Slowly (Tachyphagia and Bradyphagia). Max Einhorn, New York.
26 A Recent Epidemic of Typhoid Fever. John B. Briggs, Washington, D. C.
27 Three Cases of Excessive Fetal Development. Julius Rosenberg, New York.
28 *Spleenless Men. J. H. Carstens, Detroit.
29 An Experimental Study of the Movements Produced in the Stomach and Bowels by Electricity. G. G. Marshall, Wallinford, Vt.
30 Definition and Classification of Gastric Hemorrhage. F. Gregory Connell, Salida, Colo.
31 A Case of Sciatic Neuritis with Paralysis, Following Malaria. William G. Russell, New York.

24. **Healing of Tuberculosis.**—Why, asks King, if all are subjected to the infection, does the vast majority escape and only a comparatively small proportion develop a recognizable tuberculous lesion? The painstaking and exhaustive inquiry into the past history of a tuberculous invalid is often full of surprises. One feature, for instance, recurs with such persistent frequency that it merits some attention, and that is the striking difference in time between the presumptive evidence of disease and the first demonstrable evidence, so that at the onset of the recrudescence the original outbreak has been forgotten or regarded as having no relation to the present trouble. So that it is extremely probable that the initial lesion following a tuberculous infection is often obscure in its clinical manifestations and frequently escapes identification. There is nearly always a prompt and very often successful tendency on the part of the organism to a more or less complete repair followed by an interval of apparent health. Following this interval, which may extend into a period of years, there is a strong tendency to relapse. More often than is supposed the real incipiency of the disease is marked by sharp constitutional disturbance. King calls attention to the frequency with which it is possible to trace in the history of a tuberculous patient a first presumptive evidence of disease, followed by a more or less extended interval of apparent health before arriving at the demonstrable onset, which, in the light of the history, must be considered a recrudescence. Whatever may be the facts in an individual case, the safest and most practical policy lies in regarding every apparent recovery from tuberculosis as merely an arrest of the disease, brought about by an acquired immunity which suitable conditions are very prone to destroy. King says that if we are ever to be able to recognize the presence of tubercle during the period of arrest following the first and unrecognized onset, we are most likely to do so through the discovery of definite reactions in the blood serum of the infected. The generally accepted prognostic significance of a Diazo reaction in tuberculosis has application chiefly, if not solely, to the last stages of the disease, and when temporarily present in the early acute manifestations, or in acute exacerbations of chronic lesions, need not necessarily indicate an unfavorable termination. Its disappearance, if present, would be one of the first clinical evidences of improvement.

25. **As to Eating.**—Under the name euphagia, Einhorn describes the correct manner of partaking of food. Violations of these laws are a frequent source of diseases of the digestive system. He mentions some of the factors, such as good company, pleasant conversation, attractive service, etc., which, in addition to a palatable mode of preparation, contribute to make eating the pleasure it normally should be. Tachyphagia, or hasty eating, is a common evil. It gives rise to gastric and intestinal catarrh, hyperchlorhydria and other digestive disturbances. Bradyphagia, eating too slowly, is a comparatively rare occurrence, and is observed mainly in neurasthenics. Two cases are cited illustrating this condition, one patient taking half an hour to consume a glass of milk. The difficulty in eating was explained by the psychic excitement subsequent to the sitophobia and bradyphagia. The patient was put on a more liberal diet and advised to eat more quickly. The second case required twenty minutes for the ingestion of half a plate of soup and twenty-five minutes for a cup of milk. On a more substantial diet and more rapid eating the patient improved. The treatment consists in suitable advice as to when, how and where to eat. The removal of bradyphagia will frequently smooth the path to convalescence and enable the patient to get entirely well.

28. **Spleenless Men.**—Carstens cites two cases, one of sarcoma of the spleen and one of splenic anemia, to prove the great value of splenectomy in some cases. Both patients are now in every way well. The histories also show the value of blood examinations in obscure cases, inasmuch as they enable us not only to make the diagnosis, as a rule, but also point the way to an operation or to non-interference, as the case may be. It has been demonstrated that spleenless men can live in perfect health and that there is no difference between the blood of such men and the blood of those who have not been subjected to splenectomy.

St. Louis Medical Review.

December 31.

32 *Cases Illustrating Certain Remote Dangers of Mechanical Ileus. Willard Bartlett, St. Louis.
33 Climate for Consumption. W. D. Halliburton, Moberly, Mo.

32. **Dangers of Mechanical Ileus.**—As causes of death in mechanical ileus, Bartlett mentions: 1. Autointoxication resulting from the decomposition of albuminous substances and the absorption from the intestinal tract of the products of bacterial development and activity. 2. Inspiration of vomited material while the patient is under the influence of a general anesthetic. 3. The patient's life may suddenly end as a result of drowning himself in his fetid stomach contents, and 4. That one or more multiple obstructions may be overlooked and the error be discovered only when the persistence of symptoms after operation is noted.

Northwestern Lancet, Minneapolis.

December 15.

34 The Surgical Treatment of Pancreatitis. A. T. Mann, Minneapolis.
35 Diphtheria. C. F. Osgood, Morgan, Utah.
36 Stomach Analysis and Its Value. C. F. Coulter, Wadena, Minn.

January 1.

37 *Stricture of the Lachrymonasal Duct. M. H. Hughes, Salt Lake City.
38 *Decapsulation of the Ovaries in Ovarian Dysmenorrhea. George G. Eitel, Minneapolis
39 *Feeding of Typhoid Patients.* John Sutherland, Pierpont, S. D.

37. **Stricture of Lachrymonasal Duct.**—Hughes believes that this condition is more common than is supposed usually and that in the majority of instances it is due to disease of the nasal mucosa, to bony hypertrophy of the turbinated bodies, or to deviations of the nasal septum, and occasionally to error of refraction. A rather intimate knowledge of the conditions, with their proper treatment, is an essential factor to success in the care of disease of the tear channel. Many cases may be effectually treated by removing the primary cause. If relief is not obtained, then the punctum may be slit by the iris scissors. This failing, the entire duct should be slit up and graduated stretching resorted to. The galvanic or chemical cautery may be used with good results. The use of astringents is highly useful in the treatment of chronic inflammation of the tear sac. Proper attention should be given to the correction of any deviations from the normal as regards the general health. Locally, gradual dilation with Bowman's probes, from No. 1 to No. 6, is usually sufficient in the majority of cases.

38. **Decapsulation of Ovaries in Ovarian Dysmenorrhea.**—Eitel proposes this procedure for cases of dysmenorrhea of ovarian origin where the ovaries are covered with a tough and greatly thickened serous covering under which are found small cysts varying in size from that of a small pea to a small marble. The technic of the operation is as follows: The ovary is brought into clear view through a median abdominal incision, and one hemostatic forceps is placed at the

juncture of the utero-ovarian ligament and the ovary and another on the upper border of the broad ligament close to the ovary (lateral). By means of these two forceps the ovary is held by an assistant in the proper position while the operator makes an incision with a sharp scalpel from the ovarian ligament across the ovary to the attachment of the broad ligament, through the covering, and then carefully dissects one side and then the other down as far as cysts are encountered. The flaps of the covering of the ovary are now trimmed off, preferably by means of a pair of scissors. The utero-ovarian ligament then is shortened by doubling it on itself in a similar manner as is in vogue in shortening the round ligaments, in order to hold the uterus in a normal position. Hemorrhage can easily be controlled by pressure clamps and fine ligatures. Eitel says that there is absolutely no danger of adhesions forming, except perhaps in cases where there exists or has at some time existed an inflammatory condition which produced adhesions that had to be broken up at the time of the operation. In two cases where he had occasion to reopen the abdomen some months after the first operation, Eitel failed to find any adhesions. The result in every case in which this method has been tried has been an excellent one, and cases in point are cited.

Pacific Medical Journal, San Francisco.

December.

40 *Modern Methods of Hand Sterilization and Skin Disinfection. Winslow Anderson, San Francisco.
41 The Functions of the Nervous System. E. W. King, Ukiah, Cal.

40. **Methods of Hand Sterilization.**—Anderson describes in detail the methods of hand sterilization and skin disinfection favored by 65 prominent surgeons in this country and abroad.

St. Louis Courier of Medicine.

December.

42 The Baby Incubators on the "Pike." A Study of the Care of Premature Infants in Incubator Hospitals Erected for Show Purposes. (To be continued.) John Zahorsky, St. Louis.
43 Use and Abuse of the Syringe in Aural Practice. Selden Spencer, St. Louis.
44 *Buried Sutures. Edmund A. Babler, St. Louis.
45 Eyestrain as a Cause of Migraine. W. A. Shoemaker, St. Louis.

44. **Buried Sutures.**—Babler reviews the origin of the buried suture, considering silver wire, silk, linen and catgut, and expresses his preference for the latter, especially when prepared by the cumol method as laid down by N. B. Carson. He says he knows of no instance where chromicized gut prepared by this method has caused any subsequent trouble. He emphasizes the following points: 1. Do not dehydrate the catgut insufficiently or at too high a temperature or the gut will be brittle. Dehydrate slowly. 2. Do not tie the gut tightly. 3. Do not place the dehydrated gut in cold cumol; have the cumol at 100 C. but extinguish the flame under the cumol boiler before placing the gut in the cumol. 4. Use a large cumol boiler so that a large quantity of gut can be sterilized at one time. 5. Brittle catgut is due to insufficient dehydration or to placing the dehydrated gut in cumol below 100 C. 6. Every step in the technic must be carefully performed, and perfect asepsis must be duly observed. 7. Place the glass tubes and the cotton plugs in the sterilizer for one hour each day for three consecutive days before placing the sterile gut in them. 8. Non-absorbable chromicized gut is far more irritating than silver wire. 10. Chromicized gut prepared after the modified cumol method is readily absorbed and perfectly reliable.

Southern California Practitioner, Los Angeles.

December.

46 Rupture of the Urethra. Granville MacGowan, Los Angeles,
47 Pleurisy with Effusion and Empyema. Joseph K. Swindt, Pomona, Cal.
48 *Some Remarks on Hysterectomy, with Summary Report of 100 Cases. W. W. Beckett, Los Angeles.

48. **Hysterectomy.**—Beckett makes the following summary of 100 cases of hysterectomy. Of this number 46 were for fibroid growths, 18 for malignant disease, 27 for chronic endometritis, with diseased tubes; 8 for procidentia, 1 for imperforate os. The youngest patient was 16 years old, oldest, 71. Vaginal hysterectomy was performed 72 times; suprapubic, 28 times. Four patients died. One from pulmonary embolism the third day after operation; one from malignant stricture of the bowel seven days after operation; one from surgical shock, and one from exhaustion. Of the malignant cases, 6 have recurred; the earliest one month after operation, the latest one year after operation. In 3 cases there was alarming postoperative hemorrhage, one occurring six days after operation, one eight, and one nine days. In one case clamps only were used; in one case ligatures only, and in the other both clamps and ligatures were used. In each case clamps were reapplied for twenty-four hours. All recovered without further interruption. Whenever possible one ovary was left, and in some cases both. In the case of the 16-year-old girl with imperforate os, the uterus was dilated to the size of a seven months' pregnancy and its cavity filled with retained menstrual fluid. The right ovary was cystic and of about the size of a small orange. In the left side there was an ovarian cyst the size of a fetal head. The left fallopian tube was twelve inches long and distended with menstrual fluid. In 3 cases dermoid tumors complicated the operation. When hysterectomy was done for procidentia, anterior and posterior colporrhaphy was also performed. One patient, after a supravaginal hysterectomy, had a slight, irregular menstruation for nearly two years following the operation. In this case only one ovary was removed.

Medical Times, New York.

January.

49 Narcosomania, with Report of 21 Cases. Thomas H. Evans, Philadelphia.
50 Illustrative Cases Due to Eyestrain with Explanatory Remarks Concerning Them. Ambrose L. Ranney, New York.
51 *Review of Exophthalmic Goiter and Its Treatment. Wm. O. Hewitt, Attleboro, Mass.
52 *Abuse of the Cystoscope in Prostatic Disease. G. Frank Lydston, Chicago.
53 Some Practical Methods of Hydrotherapy for General Practice. Eliot Gorton, Summit, N. J.

51. **Quinin in Exophthalmic Goiter.**—Hewitt speaks well of the use of quinin in the form of sulphate and the neutral bromid in the treatment of this condition. According to Paulesco, quinin produces a vasoconstriction of the vessels of the head and neck, thereby rendering the goiter smaller, diminishing the pulse rate, and even reducing the exophthalmus. Of three cases under Hewitt's observation, all began with a 5-grain gelatin coated pill of the neutral bromid of quinin, morning and evening; two of the patients are taking twenty grains a day; the third fifteen grains. None have complained of symptoms of cinchonism. One patient under treatment for thirteen months has increased in weight, the nervous symptoms have largely disappeared, a troublesome diarrhea has improved, and the goiter and exophthalmus are much less noticeable. The other two cases show a decided gain in strength and general improvement.

52. **Cystoscope in Prostatic Disease.**—Lydston says that when the diagnosis of prostatic obstruction is clear the indication for radical operation is also clear, the application of this statement being modified only by the conditions governing the individual case. Any exploration of the bladder which is unnecessary to the establishment of a practical working diagnosis is not only useless but exceedingly dangerous. Cystoscopy is especially dangerous and, where not absolutely necessary, is especially to be avoided because of the traumatism and subsequent danger of infection which the insertion of the instrument necessitates, and the frequent necessity of anesthesia with prolonged exploration of the bladder. The use of the cystoscope, especially when anesthesia is employed, rapidly compounds the immediate danger to the patient, and the subsequent danger of operative procedures. A properly performed radical operation is much less dangerous than a cystoscopic exploration. The use of the cystoscope rarely accomplishes more than the gratification of the curiosity of the operator in the establishment of refinements of diagnosis. So far as the diagnosis of stone is concerned, the use of the cystoscope is superfluous. Whether the presence of stone be established or not, a radical operation for the removal of the

prostate is necessary. The stone can be removed at the same time. There are exceptional cases of posterior median obstruction and of prostatic overgrowths at the neck of the bladder in which the cystoscope is necessary. These cases are safer for exploration than the orthodox type of prostatic obstructions, but even in them diagnosis can usually be established without the cystoscope, and where this can be done the use of that instrument should be avoided.

Buffalo Medical Journal.

January.

54 *Complete Removal of the Shaft of the Tibia for Osteomyelitis, with Restoration of the Bone. George Ben Johnston, Richmond, Va.
55 Toxemia and Infections as Causes of Insanity. Frank Stephenson, Syracuse.
56 The Alexander Operation—Its Immediate and Remote Results. James E. King, Buffalo.

54. **Removal of Shaft of Tibia.**—All Johnston's cases occurred in young males and the trouble was always traceable to a trivial injury. The tibia was involved in five instances and the fibula in one. There was a remarkable variation in the degree of virulence of infection and the extent of destruction of tissue was dependent on the character of the infection. When the latter was severe there were profound constitutional symptoms. Sometimes the condition was mistaken for "growing pains," rheumatism, or erysipelas. Regeneration in all these cases was entirely of periosteal origin, was rapid and complete and deformity resulted only in such cases as had suffered destruction of the epiphyseal line. Deformity never results where a disc of bone is left between the shaft and the epiphysis. The companion bone invariably took on compensatory hypertrophy. In acute cases the time to operate is as soon as possible. In subacute or chronic cases, where the surgeon may elect the time of operation, it is well to defer it until new bone tissue has begun to appear. The operation should consist of free incision and a complete removal of all diseased bone, sparing the periosteum as much as possible. The curette should be avoided, or used very cautiously. The strictest antiseptic precautions must be observed. The after-treatment advocated by Johnston consists of the maintenance of aseptic conditions, avoiding too frequent and rough dressings, immobilization of the leg in a fracture box, carefully shaping the parts as bone tissue develops, by bandages or adhesive straps; protecting the young bone by means of plaster of paris; abstaining from use of the limb until the new bone is capable of sustaining the weight of the body, and looking after the general health.

Illinois Medical Journal, Springfield.

December.

57 A Phantom or Model for Illustrating Herniotomy and Suture Work on the Abdominal Parietes. E. Wyllys Andrews, Chicago.
58 Bronchoscopy for Foreign Bodies in the Bronchial Tubes. E. Fletcher Ingals, Chicago.
59 Practical Value of Blood Examinations. James B. Herrick, Chicago.
60 Immediate Abdominal Section. Denslow Lewis, Chicago.
61 *Pyoktanin and Its Uses as a Surgical Agent. Emanuel Friend, Chicago.
62 *Infant Mortality. William J. Butler, Chicago.
63 Successive Scientific Steps Establishing the Mosquito as the Definite Host of Malarial Fever. Thomas W. Bath, Bloomington, Ill.
64 Psychic Equivalents of Epilepsy. J. F. Hultgen, Chicago.
65 Some Newer Conceptions of the Nature and the Management of Bright s Disease. Alfred C. Croftan, Chicago.
66 Why Digital Exploration Through the Internal Inguinal Rings Should Be Made in Conjunction with Every Alexander Operation. A. Goldspohn, Chicago.

61. **Pyoktanin as a Surgical Agent.**—Friend has found pyoktanin useful in ulcers, burns, inflamed wounds and malignant neoplasms. It may be powdered directly on the surface of large purulent wounds and ulcers until a firm scab is formed, which must then be abandoned to spontaneous desquamation; or it may be employed as a dusting powder mixed with talcum, starch or sugar of milk in the strength of 2 per cent.; a 2 to 10 per cent. ointment, using lanolin, lard, cosmolin or vaselin as a base; pyoktanin pencils to be dipped in water and passed over the ulcerated surfaces, and solutions varying in strength from 1 to 1,000 to a saturated aqueous solution. Friend has made use mostly of the latter preparation. Burns of the second and third degree, quite extensive in size, as well as large varicose and specific ulcerations and osteomyelitic bone fistulæ, were treated with a saturated solution of the drug with excellent results. A solution of 1 to 1,000 was used in irrigating wounds, such as those following lymphadenitis, with good results. The chief advantages of the use of pyoktanin are: 1, The rapidity of action; 2, its drying tendencies of the weeping wound surface and consequent cutting short of the suppurating process; 3, the prevention of adherence of the gauze covering the ulcerated area, and in consequence, the minimum of disturbance to the newly-formed epithelial elements; 4, curbing of excessive granulation tissue; 5, non-irritating, non-poisonous and anodyne effects; 6, ease of application; 7, cheapness.

62. **Infant Mortality.**—Butler finds from a study of vital statistics that there has been a decided yearly increase in infant and early childhood mortality from all causes during the past decade in Chicago. It appears that there has been a decided reduction in the death rate from gastrointestinal and kindred diseases; this was most marked in 1900, since when the drinking water has been greatly improved. Prior to 1900 there seems to have been a variation in the yearly death rate, but since then an unvarying decrease. No one factor seems to explain fully all the figures given. The condition of the water, however, seems to bear an especially important relation. Milk inspection, too, has assisted greatly in so far as it has resulted in a pure, wholesome milk, undiluted and carefully and promptly handled. The education of the people by the profession and the greater interest taken in pediatrics have been of incalculable value. Lastly, the conditions of the poor, among whom infant mortality is by all odds the highest, has improved considerably.

Canadian Practitioner and Review, Toronto.

December.

67 Plea for the Voluntary Admission of Certain Types of Insanity to Institutions for the Insane. James Russell, Hamilton, Canada.
68 *Use of Intoxicating Liquors and Life Insurance. T. Millman, Toronto, Canada.
69 *Operative Treatment of Spina Bifida. E. R. Secord, Brantford.

68. **Liquors and Life Insurance.**—Millman makes the following deductions: 1. That total abstainers, other things being equal, are decidedly the best risks for life insurance. 2. That insurance companies are justified in accepting applicants who confine themselves to a glass of beer or wine, or a pony of whisky to each meal. 3. That such applicants, and those who take one or two glasses between meals should, if accepted, pay extra rates. As there is always danger that the habit will become more decided as time goes on, it is preferable that such applicants be rejected. 4. Those who get intoxicated for a few hours three or four times a year should also be rejected, as the habit is apt to increase. If accepted they should pay extra rates. 5. If more is consumed than in deduction 3, or of intoxication is more frequent and of longer duration than in deduction 4, the applicant should be rejected. 6. Officers and members of lodges should be careful in soliciting applicants who use intoxicating liquors. Medical examiners should carefully analyze the habit of each applicant in respect to the use of intoxicating liquors. They should not simply take the statement of the applicant, but ascertain just how much liquor he takes daily and what hours of the day. 7. As alcohol, taken to excess, damages the cells and the tissues of the body, care should be exercised in acting on the examination papers of applicants who state that one, or other, or both, of their parents were addicted to alcoholic excesses. The reproductive germs are damaged, and the health of the offspring, bodily and mentally, must be impaired. As a rule, they are not long-lived, and many criminals, idiots, etc., come from this class.

69. **Treatment of Spina Bifida.**—Secord believes that there are no absolute contraindications to the operative treatment of spina bifida. The worse the case the more marked becomes the futility of other than operative measures, and the greater the probability that the child will die if left alone. Paralysis, hydrocephalus and marasmus, often spoken of as contraindications, should not be so considered. Each has been and may be

improved. Absolute asepsis, combined with as little handling of nerve tissue as is essential, will give the best results. Loss of cerebrospinal fluid in moderate amounts is not of importance, neither is it necessary to operate on an inclined plane. The use of bony flaps is rarely, if ever, essential.

Wisconsin Medical Journal, Milwaukee.

December.

70 Hydronephrosis. G. D. Ladd, Milwaukee.
71 A Case of Typhoidal Perforation. Edmund W. Holmes, Philadelphia.
72 *Chronic Continuous Secretion of Gastric Juice. L. F. Jermain, Milwaukee.
73 *Estimation of Indemnity in the Case of Loss of Vision, Especially Loss of One or Both Eyes. H. V. Würdemann, Milwaukee.

72.—See abstract in THE JOURNAL, xliii, page 67.

73.—Ibid., page 66.

Medical Bulletin, Philadelphia.

December.

74 Aesculin. William F. Waugh, Chicago.
75 Use of Adrenalin Chlorid Solution in a Case of Collapse Following Administration of Chloroform. James L. Thompson, Castelmaine, Australia.

Nashville Journal of Medicine and Surgery, Nashville.

November.

76 Gastrointestinal Disorders in Children. E. H. Jones, Murfreesboro.
77 Lobar Pneumonia; Its Treatment. J. P. Bates, Clarksville, Tenn.

Richmond Journal of Practice, Richmond.

November.

78 Symptoms and Diagnosis of Cancer of the Stomach. H. S. MacLean, Richmond.
79 Diabetes Mellitis—With Report of a Case. A. G. Brown, Richmond.
80 Surgery of Typhoid Fever. W. W. Keen, Philadelphia.

The Alabama Medical Journal, Birmingham.

December.

81 Observations of Pyosalpinx. G. S. Brown, Birmingham.
82 Report of Abdominal Operations. W. M. Jordan, Birmingham.
83 Intestinal Perforation in Typhoid Fever and Its Treatment. C. Wilson, Birmingham.
84 Uncinariasis, Its Presence in the Birmingham District—Report of Cases. J. M. Mason, Birmingham.

The Journal of Nervous and Mental Disease, New York.

December.

85 A Case of Juvenile Tabes in a Family of Neuro Syphilitics. J. Grinker, Chicago.
86 An Additional Case of Precocious Tabes. J. Grinker, Chicago.
87 Subcortical Cyst and Fibroma Due to Trauma Producing Jacksonian Epilepsy, Cured by Operation. M. Schlapp and J. J. Walsh, New York.

The Kansas City Medical Record, Kansas City.

December.

89 Notes on a Case of Cerebral Hemorrhage. W. J. May, Baker City, Ore.

The Virginia Medical Semi-Monthly, Richmond.

December 9.

90 Practical Points in the Interpretation of Sanitary Water Analyses, from the Physician's Standpoint. E. C. Levy, Richmond.
91 The Appendix and Its Relation to Abdominal Hernia. W. B. DeGarno, New York.
92 Case of Mangled Limb Illustrating Value of Conservative Surgery. Wm. E. Anderson, Farmville, Va.
93 The Etiology of Pulmonary Tuberculosis Considered in Relation to Its Therapeutics. L. F. High, Southern Pines, N. C.
94 Typhoid Fever—I. Fatal Hemorrhage in a Child. II. Double Relapsing Typhoid. R. S. Martin, Stuart, Va.
95 The Early Recognition of Hypertension. H. W. Cook, Richmond.
96 Case of Post-Operative Hysteria Simulating Epilepsy. K. C. Corley, Washington, D. C.
97 Adeno-Carcinoma of Ileo-Cecal Valve, with Large Amount of Fibrous Tissue—Resembling Appendicitis. R. M. Slaughter, Theological Seminary, Va.

The Canada Lancet, Toronto.

December.

99 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. A. W. M. Robson, England.
100 The Progress of Medical Science. J. Grant.
101 Presidential Address, American International Congress on Tuberculosis. E. J. Barrick, Toronto.
102 The Use of the Finsen Light and X-ray at the Old London Hospital. J. Price-Brown.

Brooklyn Medical Journal, Brooklyn.

December.

1 Haste and Delay in Surgical Operations; Both Equally Objectionable. E. D. Ferguson, Troy.
Degenerative Changes in the Myocardium Which Give to Serious Cardiac Disease. R. Clark.
Relation Between Systemic Disorders and Skin Diseases. F. Winfield, Brooklyn.
is of Ectopic Gestation. A. M. Judd.

107 Fissure in Ano. E. H. Mayne.
108 Acute Catarrhal Otitis Media. L. A. McClella
109 Acute Intestinal Obstruction. W. S. Simmons,
110 Cystic Goiter of Right Lobe in a Woman W. A. Tomes.

The Journal of Advanced Therapeutics, New Y

December.

111 Clinical and Experimental Effects of Electrical C High Potential and Frequency. J. H. ville, N. Y.
113 Sensitization of Living Tissues. (Continued.) M. New York.
114 Sulphuric Acid as a Means of Drying the Static Machine. R. D. Doble, London.
115 Dietetics in the Treatment of Constipation. S. York.
116 Vibratory Treatment of Constipation. A. Snow, N
117 Constipation—Its Electrical Treatment. M. W. New York.
118 Exercise in the Treatment of Constipation. W. L.

Memphis Medical Monthly, Memphis.

December.

119 A Higher Standard of Physical Manhood. How Attained? J. L. Crook, Jackson, Tenn.
120 What Can We Do to Prevent the Spread of Cons the Negro Race in the Southern States? J. Dancyville, Tenn.
121 Dangers of Infection Which Lurk in the Teleph Stanley, Memphis.
122 Strabismus. G. H. Savage, Memphis.
123 Lesions of the Brain Affecting the Functions of F. Turner, Memphis.
124 Traumatic Insanity—Report of a Case. W. H. Marianna, Ark.

Toledo Medical and Surgical Reporter.

December.

125 Examination of the Pathologic Feces. R. C. Toledo.
126 What Should Be the Attitude of the State and th Profession Toward the Individual Suffering culosis? Wm. A. Dickey, Toledo.
127 Résumé of 100 Abdominal Operations. J. H. Toledo.
128 Granular Lids—Some General Facts. Mark D. Akron.

Journal of the Mississippi State Medical Asso

December.

130 Care of the Newborn. Alma L. Rowe, Forest.
131 Operation for Radical Cure of Inguinal Hernia. rison, Tutwiler.
132 Uncinaria Americana. H. M. Folkes, Biloxi.
133 Treatment of Typhoid Fever. R. B. Stapleton,
134 Patent and Proprietary Medicines. R. C. Elmore,

Medicine, Chicago.

December.

135 The Surgical Treatment of Infantile Paralysis. A. Chicago.
136 Paretic Dementia and Depressing Delusions. J nan, Chicago.
137 Report of a Case of Subphrenic Abscess, Illustra graph. G. E. Pfahler, Philadelphia.
138 A Note on Some Forms of Muscular Inco-ordination F. Hansell, Philadelphia.
139 Nephritis; Symptomatology and Diagnosis. August ner, Philadelphia.
140 Fistula in Ano. J. M. Frankenburger, Kansas City
142 Transmitted Irritability of the Bladder. G. Kolli L. E. Schmidt, Chicago.

Journal of Cutaneous Diseases, New York.

December.

143 The Relation of Certain Dermatoses to Each C Changes in Vascular Equilibrium. James Nevins Ernest L. McEwen, Chicago.
144 Parasitic Sycosis Communicated from Cattle. Breakey, Ann Arbor.
145 Lichen Planus Verrucosus. A. Ravogli, Cincinnati.
146 Report of a Case of Blastomycosis. Henry H. Koeh Gaylord C. Hall, Louisville.

New York State Journal of Medicine, New York.

December.

147 Address of the President, New York County Medical tion. Francis J. Quinlan, New York.
148 The Value of Oxygen in Combination with the Differen thetics in Common Use. James T. Gwathmey, New
149 *An Old Specialty. Jane L. Greeley, Jamestown.
150 *Asthma and Its Relation to Environments from a Etiologic Standpoint. George N. Jack, Buffalo.

149.—See abstract in THE JOURNAL of November 5, page

150.—Ibid.

Kentucky State Medical Journal, Louisville.

December.

151 Through and Through Gunshot Wound, with Pe the Liver. W. A. Quinn, Henderson.
152 Acute Intestinal Diseases of Summer. D. C. Bowen, Nol
153 Surgery in Country Practice, with Report of a Case of ture of Skull with Loss of Brain Substance. A. M. tenden, Ferguson.
154 The History of the Formation of Renal Calculi. O. L. rad, Wilsonville.
155 Cactus Grandiflora in Cardiac Derangements. S. L. Wilsonville.

156 Neurasthenia. J. C. Cassity, Eminence.
157 Tuberculosis of the Kidney. J. Garland Sherrill, Louisville.
158 The Management of Normal Labor. Nevil M. Garrett, Frankfort.
159 Nasal Catarrh. A. H. Edwards, Hopkinsville.
160 Placenta Previa Centralis with Excessive Hemorrhage. Successful Delivery at the Eighth Month. Report of a Case. R. B. Gilbert, Louisville.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

December 24.

1 Stone in the Kidney. H. Bertham Robinson, London.
2 *Notes on Local Anesthesia. Arthur E. Barker, London.
3 A Physiologic Contribution to the Problem of Chloroform Anesthesia. A. D. Waller.
4 An Operation for Fixing Movable Kidney. Andrew Fullerton.
5 *A Note on the Treatment of Thrombosis of the Superficial Veins of the Lower Extremities. C. Mansell Moullin.
6 The Anthropometric Investigation of Hospital Patients. F. C. Shrubsall.

2. **Local Analgesia.**—Barker describes his method of producing local anesthesia. He uses B-eucain, which is far less dangerous than cocain, while possessing analgesic properties little, if at all, inferior to it, and with the concurrent use of adrenalin for the purpose of securing a retardation of circulation equivalent to constriction of the part, he has removed some of the objections as to the duration of the analgesia, the extent of the area which can be dealt with and the amount of the toxic drug to be employed. It is necessary to within the safe dose of the drug, and to have at our dis- a large enough quantity of the fluid medium to ren- possible to spread the analgesic agent over large areas. dinary surgical work Barker finds the following solu- answer well: Distilled water, 140 c.c.; B-eucain, 0.2 sodium chlorid, 0.8 grams; 1 to 1,000 adrenalin chlorid 10 minims. All this quantity of fluid can be used dinary case if necessary and is quite sufficient for Twice as much may be injected without ill results. ation of the insensibility is secured by the admixture adrenalin. Without it sensation is only abolished by for about fifteen minutes; with it, for three to four But the analgesia is produced more slowly when is employed with the eucain. It is therefore well larger operations to wait some thirty minues after to allow time for the insensibility to become fully d. After this the effect appears to deepen for a of hours. Waiting has another advantage. When alone is employed the operation must be done at once. sues are still in a state of artificial edema which the anatomic details unpleasantly. By adding adren- the eucain solution and waiting, the artificial edema isappeared and details are very clearly seen. Rapid on is to be avoided; sudden distention of the tissues greeable, if not painful. The fluid should not be used or too hot, for the same reason. All dragging on the is to be avoided, lest structures be pulled upon which eyond the area of infiltration. Barker has never seen depressing effects follow the use of B-eucain in a long s of operations. A list of operations done under B-eu- analgesia is appended, and among these are the fol- ng: Abdominal sections, hernia operations, amputations, hidectomy, removal of cyst of thyroid, removal of silver re from around the patella, operations for fistula in ano, ricose veins, hydrocele, varicocele, etc.

5. **Treatment of Thrombosis of Superficial Veins of Leg.**—Moullin excises, at the very earliest opportunity, the whole thrombosed portion of the vein with the most excellent results. The wound is healed in a week and the patient can get up cured and freed from all the risks of embolism, deep thrombosis, or recurrence. He has not found that a moderate degree of inflammation makes any difference. It begins to subside as soon as the offending vein is removed; but, of course, in such a case, the wound should not be sewed up tightly, as there is sure to be a considerable amount of oozing afterward.

The Lancet, London.

December 24.

7 The Restoration of Hearing After Removal of the Drum and Ossicles by a Modification of the Radical Mastoid Operation for Suppurative Ear Disease. Founded on the Experiences of 400 Operations. Charles J. Heath, London.
8 *Congenital Intestinal Atresia. H. S. Clogg.
9 *The Intravenous Injection of Antitoxin in Diphtheria. John Biernacki and J. C. Muir.
10 The Parasites of Smallpox, Vaccinia and Varicella. W. E. De Korte, London.
11 *Some Observations on Convulsions in Children and Their Relation to Epilepsy. R. O. Moon, London.
12 Hemoconia. Andrew Love, Glasgow.
13 *An Unusual Case of Diaphragmatic Hernia. H. B. G. Newham.
14 A Case of Congenital Hypertrophic Stenosis of the Pylorus in which Pyloroplasty Was Unsuccessfully Performed. J. Rutherford Morison, Newcastle-on-Tyne.
15 Note on a Case of Acute Cerebral Abscess. A. L. Whitehead, Leeds.

8. **Congenital Intestinal Atresia.**—Two cases of this kind are reported by Clogg. The first was a female infant, aged 6 days. She had passed nothing by rectum and had passed very little urine. Vomiting commenced shortly after birth and persisted in increasing severity, becoming dark brown in color and very offensive. The navel was very prominent—a congenital umbilical hernia. At the necropsy it was found that the large intestine commenced just below the hepatic flexure; the transverse colon, sigmoid flexure and rectum were very shrunken. In the sac of the hernia was the lowest coil of small intestine, from which a diverticulum arose. Beyond this point the intestine which represented the cecum and ascending colon was much contracted; it was too small to permit of the onward passage of contents. The intestine ended blindly in the sac and the large intestine commenced just below the hepatic flexure of the colon. The second patient was a male infant, 4 days old. Shortly after birth he commenced to vomit, the vomitus becoming very offensive. The abdomen was distended. Nothing had been passed by rectum. Operation disclosed that the intestine ended blindly at the lower end of the ileum and was continued on as an impervious cord about half an inch in length into a much shrunken and contracted large intestine. The obstruction was situated about two inches above the ileum.

9. **Intravenous Injection of Diphtheria Antitoxin.**—In the course of nine months Biernacki and Muir treated 38 cases of diphtheria by intravenous injection of antitoxin. These cases are primarily grouped as nasopharyngeal, pharyngeal and laryngeal. In the first group there are 14 cases, with no deaths. In 5 cases intravenous injections only were used; in 6 cases relatively small supplementary doses were given by the subcutaneous method; in 2 cases both methods were equally employed, and in 1 case the greater part of the antitoxin was injected subcutaneously. Of pure pharyngeal cases there were 12, with 1 death. The administration of antitoxin was solely intravenous in 2 cases, mainly intravenous in 5, about equally intravenous and subcutaneous in 2, and chiefly subcutaneous in 3. The laryngeal cases fall into 3 groups—those not requiring operation, those intubated and those in which tracheotomy was performed. In the first group there are two ordinary cases, both ending in recovery. One was treated wholly and the other chiefly by the intravenous method. In a third case the lesion was mainly pharyngeal and nasal, but there was slight laryngeal involvement. It proved fatal. Six cases required intubation only, and all the patients recovered. In 4 cases the treatment was purely intravenous, in 1 mainly so; in the remaining case an equal subcutaneous dose was given. Tracheotomy was performed in 3 cases, with 1 death. In 1 all the antitoxin, and in a second half of it was given intravenously; in the third the intravenous dose was subsidiary. Two brands of serum (A and B) were employed in a previous series of 7 cases, 5 of which resulted fatally. Serum A was previously in use for hypodermic injection, and, when given intravenously, in 3 cases out of 4, it caused, within a short time, a varying degree of chill, pyrexia and circulatory depression. With neither serum was there any aggravation of the rash or of other later effects. In this second series of 38 cases only serum B was employed. The dose intravenously was 20,000 units. In the

entire series there was a fatality of 3 in 38 selected severe cases, a result which seems to favor the intravenous method. However, there has been a general fall in the fatality of diphtheria in the particular district cared for by the authors, and this leaves room for speculation as to whether the subcutaneous method might not have yielded better results. Nevertheless, it will be noted that of 9 cases operated on only 1 died. The authors conclude that even in cases other than laryngeal it seems very difficult, if not impossible, to say of any individual patient that a better result was obtained than might have followed subcutaneous injection.

11. **Relation of Epilepsy to Convulsions in Children.**—Moon urges that a serious view be taken of all convulsions occurring in infancy, and says that we are not justified in supposing that even a single convulsion in childhood will end with itself and have no further evil influence on the life of the child. For most of the cases which arise in connection with an extrinsic cause also have a history of heredity or alcoholism in the parents which are both predisposing causes of epilepsy. Even where there is no such history, and it is assumed that a peripheral irritation is adequate in itself to produce a convulsion in a perfectly normal brain, the mere fact of the convulsions being often repeated makes the brain cease to be normal and creates a distinct pathologic basis for the production of epilepsy. It is impossible to give the precise relation of such convulsions to epilepsy, but Moon believes that a much greater difference is made between these two affections than the facts seem to warrant.

13. **Unusual Case of Diaphragmatic Hernia.**—Newham's patient fell to the ground, a distance of some thirty feet, fracturing the left femur through the middle third and bruising the chest and abdomen considerably, but without signs of any fracture of the ribs. He was also vomiting and in a generally collapsed condition. Some dullness was made out in the flanks which shifted on moving the patient. A diagnosis was made of probably ruptured spleen, but owing to the general grave condition of the patient operative interference was out of the question. There was considerable pain over the cardiac region, somewhat increased on taking food. Later he was suddenly seized with most severe pain in the abdomen, accompanied by dry retching and intense thirst. The symptoms continued more or less severe for two days, when the patient suddenly became unconscious and died in about half an hour. On removing the chest wall at the autopsy, the first organ to present itself to view was the stomach, accompanied by part of the transverse colon, both greatly distended, and the latter showing signs of strangulation. These practically filled the left side of the thorax except for about ten ounces of blood-stained fluid which were present. The left lung was firmly pressed back against the spinal column, it was quite airless, small and deeply pigmented. The heart was healthy, though small and pushed over well to the right of the sternum. The right lung was small, congested and completely bound down by pleuritic adhesions. On examination of the diaphragm, an opening slightly to the left of the middle line, with smooth edges and easily admitting the index finger, was found, through which the stomach and intestines had escaped into the thoracic cavity. The hole in the diaphragm appears to have been made at the time of the accident and was probably caused by sudden, violent muscular contraction.

Semaine Médicale, Paris.

16 (XXIV, No. 51, December 21.) *De l'ostéotomie pubienne par la méthode de Gigli. R. de Bovis (Rheims).

16. **Extramedian Symphyseotomy.**—De Bovis makes out the balance sheet in regard to Gigli's "lateral section of the pelvis." He finds that the operation has been performed in 48 cases to date, and, with the exception of Baumm, all those who have performed it are much gratified with the results, both immediate and remote. Baumm's 2 patients died from infection resulting from laceration of the vagina. He does not give the particulars, and it is possible that the operation may not have been responsible for the fatalities. But even assuming that it was, this mortality of 2 in 48, or 4 per cent., is much less than the mortality of at least 10 per cent. after ordinary symphyseotomy. In every case the wound healed by primary intention. In De Bovis' 2 cases the callus was minimal and finally absorbed, so that a physician would not find a trace of the intervention on palpating the region or by digital examination through the vagina. The posterior articulations of the pelvis should be stretched beforehand to prevent pains later. The other indications are the same as for any symphyseotomy.

Archiv f. Gynäkologie, Berlin.

Last indexed XLIII, page 1585.

17 (LXXIII, No. 3.) *Zur schnellen Erweiterung des Muttermundes nach Bossi auf Grund von 30 weiteren Fallen (mechanical dilatation). B. Ehrlich (Leopold's clinic, Dresden).

18 *Ueber künstliche Frühgeburt bei engem Becken mittels des Bossi'schen Dilatationsverfahrens und daran sich anschliessender Metreuryse (mechanical dilatation). G. Heller (ibid.).

19 *Die Spinal-Analgesie mit besonderer Berücksichtigung ihrer Verwendung in der Gynäkologie und Geburtshilfe. M. Stolz (Graz).

20 Ueber das gleichzeitige Vorkommen von Sarkom und Karzinom im Uterus. O. Nebesky (Innsbruck).

21 Ueber die Dauer der Schwangerschaft (duration of pregnancy). T. Hockstetter (Stuttgart).

22 Zangen-Operationen bei hochstehendem Kopfe (forceps extraction with head up). T. V. We[illegible]el (Budapest).

17 and 18. **Mechanical Dilatation with [illegible] Bossi's Dilator.**—Ehrlich states that not a single instance o[illegible] any noticeable complication of the puerperium, due to the u[illegible] of Bossi's dilator, was observed in 30 cases of eclampsia. [illegible]chanical dilatation should be reserved for serious cases, but [illegible] when indicated, it can be used without dread of complications. [illegible] 100 pages are devoted to the particulars of its application [illegible] at Leopold's clinic, with analysis of 70 articles on the subject [illegible] from the literature. Heller relates the details in 30 cases of contracted pelvis in which artificial premature delivery was accomplished with the Bossi, followed by the metreurynter. He emphasizes the importance of frequent external examination of the woman to watch the development of the fetal head during the last two months and that the child should not be taken out of the incubator too soon.

19. **Spinal Analgesia in Obstetrics and Gynecology.**—Stolz summarizes his conclusions on this theme as follows: Injection of .05 gm. tropacocain in 5 c.c. of cerebrospinal fluid is sufficient to induce analgesia in the external genitalia for an hour. The labor contractions are not reduced in frequency, length or intensity, but rather become more vigorous. The reflex action of the abdominal muscles is excluded, but voluntary action is possible and efficient. Spinal analgesia is suitable for operative intervention, but lumbar puncture is not so easy as in the nonpregnant subject. Spinal analgesia gave negative or dubious results in 2 cases of eclampsia. He reviews the particulars of 155 gynecologic and 25 obstetric cases in which it was applied. With only from .05 to .08 gm. of tropacocain the procedure is harmless. The larger the dose the longer and deeper the analgesia, while the larger the amount of cerebrospinal fluid used to dilute it, the greater the extent of the analgesia. A good rule is to use as many c.c. of the fluid as cg. of the tropacocain. In about 56.3 per cent. of the cases of laparotomy it gave sufficient analgesia for the purpose. About 31 per cent. required a little inhalation narcosis to complete the operation, and in 12.7 per cent. the spinal analgesia proved entirely inadequate and had to be supplemented at once by inhalation narcosis. A very small amount of the anesthetic answers the purpose in these circumstances. He has derived the impression that nervous affections and inflammatory processes seem to affect the spinal analgesia unfavorably.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 167.

23 (XLII, No. 3.) Die Einklemmungs-Luxation der Patella. H. Küttner.

24 Ueber Verletzungen der Handwurzel (Os lunatum). A. Wittek.

25 Doppelseitige Subluxation des Metacarpus (non-traumatischen Ursprungs). Ibid.

26 Fall von Luxatio pedis posterior inveterata und deren Reposition. O. Fäster.

27 Zur Technik der Nephropexie. M. Hofmann.

28 Ueber Sarkoms-Uebertragungs-Versuche (transmission of sarcoma). A. Vescher (Basle).

29 Zur Kenntniss der congen. Tumoren der Kreuzsteissbeingegend (in sacrococcygeal region). W. Hagen.
30 *Erfolge der Radikal-Behandlung des Mastdarmkrebses (rectal cancer). L. Küpferle.
31 Altes und Neues zur Behandlung von Knochenhöhlen (bone cavities). J. Wagenknecht.

30. **Radical Treatment of Rectal Cancer.**—Küpferle reviews 238 cases of rectal cancer treated by radical extirpation at Czerny's clinic during the last twenty-five years. About 36.4 per cent. of the patients were women. He states that 17.3 per cent. of the 196 patients operated on several years ago have remained well. This result was obtained in several cases in which the extent of the lesion rendered the outlook very unfavorable. The material is analyzed in detail and compared with the reports from other clinics.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 77.

32 (XXVIII, No. 49, December 10.) Zur Frage der Konvulsionen nephrektomierter Kaninchen (rabbits). Blumreich.
33 Kurze Bemerkung zur Lumbal Punktion bei Eklampsie. B. Krönig (Jena).
34 Zur operativen Behandlung der chronischen puerperalen Uterusinversion (Küstner technic). H. Thomson.
35 *Radioscopy of Fetus in Utero.—Ueber den Nachweis des Kindes in der Gebärmutter mittels Röntgenstrahlen Albers-Schönberg (Hamburg).

35. **Radioscopy of Fetus in Utero.**—Albers-Schonberg has succeeded in obtaining good radioscopic views of the fetus at eight months in 2 cases. He accomplishes this by using a special diaphragm which exerts light compression on the abdomen and prevents change of position by the fetus.

Mitteilungen a. d. Grenzgebieten, Mikulicz and Naunyn's, Jena.

Last indexed XLIII, page 1132.

36 (XIII, supplement.) Acute, Non-suppurative Thyroiditis.—Die acute, nicht eitrige Thyreoiditis und die Beteiligung der Schilddrüse an acuten Intoxicationen und Infectionen überhaupt. F. de Quervain (Switzerland).
37 (XIV, Nos. 1-2.) *Syphilis of Biliary Apparatus with Febrile Course.—Ueber die fieberhaft verlaufende Lues der Gallenblase und Gallengänge sowie der Leber. B. Riedel (Jena).
38 *Experimentelle Untersuchungen über die Einwirkung der Röntgen-Strahlen auf innere Organe. H. Heineke (Leipsic).
39 Zur Klinik und Pathologie der hämorrhagischen Pankreas-Nekrose. E. Rautenberg (Königsberg). Three cases.
40 Zur Hepato-Cholangio Enterostomie und zur Anatomie der Gallengänge (of biliary passages). Enderlen and Zumstein (Marburg).
41 Klinische und exp. Beiträge zur Physiologie der Schilddrüse und der Epithel-Körperchen (thyroid gland and epithelial bodies). F. Pineles (Vienna).
42 *Zur Kenntnis der Tumoren des Kleinhirnbrückenwinkels ("Zentrale Neurofibromatose," "Akustikus-Neurome). O. Funkenstein (Königsberg).
43 Ueber das Rinden-Zentrum für kontralaterale Augen- und Kopfdrehung (cortical center for deviation of eyes and head). Zur Verth.
44 *Ueber komplizierende Nephritis bei Perityphlitis. W. Hildebrandt (Freiburg).
45 *Mechanismus der Darmeinstulpung bei einem Kinde mit 3 Invaginationen, 2 descendierenden und 1 ascendierenden. B. Riedel.
46 Eine seit 3 Jahren sich wiederholende spontan zurückgehende, schliesslich irreponibele Invaginatio ileo-ileo-colica. Ibid.

37. **Febrile Luetic Cholecystitis.**—Riedel ten years ago had an opportunity to observe a case presenting the typical clinical picture of cholecystitis due to impaction of a gallstone in the neck of the gall bladder. An operation revealed merely thick bile in this organ, with adhesions connecting it to the duodenum and omentum. Fresh deposits of fibrin on the liver indicated that there must have been some recent and violent inflammatory process nearby. The liver contained a number of grayish nodules in the right lobe, unmistakable evidences of lues. This assumption was confirmed by the subsidence of all symptoms following the use of potassium iodid. The patient was a woman of 52 with no knowledge of a syphilitic infection, but who had 2 illegitimate children. In 2 other cases the syphilitic nature of the cholecystitis without icterus was recognized, but the pains were so intense that an operation was undertaken. It disclosed extensive adhesions and changes in the liver in both cases. The patients still have pains at times. In another case a febrile syphilitic process in the liver simulated cholecystitis. The patient was a physician of 37 and the intermittent colics with evening temperature of about 38 C., persisting for months, did not interfere with his practice nor debilitate him. Empyema of the gall bladder was his own diagnosis, and he clamored for an operation. A simple incision showed that this was a mistake, but the symptoms permanently subsided afterward. Syphilis of the liver is not rare, but it is frequently unrecognized. The patients generally belong to the upper classes, have consulted many authorities, and their disturbances have usually been ascribed to gallstones, or to cancer. One of his patients had been taking a course of treatment for a supposed inoperable cancer of the stomach; 6 bottles of potassium iodid caused a disappearance of all symptoms. Riedel has encountered only one serious case of acute cholecystitis *sine concremento*. All the others ran a harmless course. In another instance a child of 3 succumbed to an acute infection of the smaller biliary passages, originating in the papilla, with an abscess above the liver communicating with the pleural cavity. This case confirms the possibility that a perfectly healthy liver may become so infected that an abscess results without the presence of stones or of any lesion in the liver, and without any general constitutional disease. Several other unusual cases are described, among them that of a woman with febrile periods, icterus, liver dullness 18 cm., no tumor, no albuminuria, and not a trace of pain. The authorities discarded the idea of gallstones, but incision disclosed a large stone in the bile duct and pus in the gall bladder, the liver comparatively sound.

38. **Influence of Roentgen Rays on Internal Organs.**—Heineke's research on mice, rabbits, guinea-pigs and dogs has confirmed the statements of others in regard to the action of the Roentgen rays on the internal organs. The effect observed is entirely independent of that noted on the skin. With the exception of the testicles, the deep action of the Roentgen rays seems to be exclusively restricted to the organs concerned in the making of blood. The action is manifested in two ways: in the annihilation of the lymphoid tissue and in the destruction of the cells of the bone marrow and spleen pulp. This reaction of the lymphoid tissue is specific. It occurs long before any other organ or system of organs shows any changes from the exposure, and the dosage can be calculated to limit the action of the rays to this tissue alone. The reaction is further distinguished by the lack of any latent stage, by its sudden onset, its stormy course, its early termination, the absence of any after-effects and by the rapid restitution of what has been destroyed. In all these points the reaction is directly the reverse of what is observed in regard to the action of the Roentgen rays on other material. We must always reckon with this destruction of the lymphocytes as an inevitable accompaniment of any exposure. It does not seem to entail any undesired or dangerous by-effects.

42. **Tumors in the Groove Between Pons and Medulla.**—Funkenstein draws the clinical picture of a tumor in the recess between the pons, cerebellum and medulla, as illustrated in a number of cases. He asserts that tumors at this point are operable only when they are solitary and unilateral. Bilateral tumors are operable, but they are generally associated with a more or less extensive central neurofibromatosis. Unilateral deafness is an important sign of a unilateral tumor, usually solitary. Sternberg's is the only case on record in which it was associated with multiple tumors. When the deafness is bilateral and a tumor on both sides is probable, and with them central neurofibromatosis, the chances of an operation are far less favorable. As these tumors are of very slow growth, the life expectancy is actually lessened by any surgical intervention. The surgeon's hand may be forced, however, by the importunity of the subject begging to be released from his annoying symptoms. The article is a very complete study of the subject, based on 6 cases and 10 from the literature. The first of the writer's patients died after an operation by Krause's technic, the findings indicating central neurofibromatosis. The second patient succumbed unoperated on. A solitary neurofibroma was found on the right auditory nerve. A solitary neurofibroma involving the auditory and facial nerves on one side, with psammoma of the dura, was found in the cadaver of an elderly woman who had died from peritonitis. The fourth case was one of sarcoma in the cerebellum, the fifth of endothelioma in the left posterior fossa, both fatal. The symptomatology of each of the cases is carefully reviewed. Gibson's is the only one on record cured by operation, and the diagnosis of "acoustic neuroma" was dubious in this case.

44. Complicating Nephritis in Appendicitis.—This article from Bäumler's clinic emphasizes the seriousness of nephritis as a complication of appendicitis. It describes a case of acute hemorrhagic nephritis, the onset coinciding with that of appendicitis. The kidney affection gradually subsided as the other grew worse. Hildebrandt is convinced that he saved his patient only by refraining from operating on the appendix until the kidneys were able to functionate better by the subsidence of the nephritis. The cases on record in which operative treatment was undertaken—regardless of the concomitant nephritis—all terminated fatally. Complicating nephritis, therefore, modifies somewhat the indications for surgical treatment in appendicitis.

45. Triple Invagination in an Infant.—Riedel illustrates a case of triple invagination in a 5 months old infant. The ileum had become invaginated through the ileocecal valve into the cecum, while at the same time there was retrograde invagination of the sigmoid flexure in the descending colon, and the lower end of the sigmoid flexure had become invaginated in the rectum. Conditions were restored to normal by a laparotomy, but the child succumbed to an immediate double pneumonia. The abdominal viscera were found apparently quite normal at the necropsy.

Münchener medicinische Wochenschrift.

47 (LI, No. 48, November 29.) *Fatigue Antitoxin.—Ueber das Ermudungstoxin und -antitoxin. W. Weichardt.
48 Iodin Sulphuric Acid Test for Starch.—Zur Technik der Jod-Schwefelsäurereaktion auf Amyloid. E. Neumann.
49 *Zur Technik der Gruber-Widalschen Reaktion. C. Stäubli.
50 *Zu [illegible] minalis mittelst des [illegible] ing.
51 Zu [illegible] aus Uterus-Lochien [illegible] nd A. Scheib.
52 Ueber die diagnostische und prognostische Bedeutung der mikroskopischen Untersuchung des Lochial-Sekrets. A. Leo.
53 *Temperatur-Suggestionen bei Tuberkulösen. F. Köhler and M. Behr.
54 Dangers of Schultze's Swinging.—Gefahren der Schultzeschen Schwingungen. A. Hengge.
55 *Behandlung der Leukämie durch Röntgen-Strahlen. E. Schenck.
56 *Fall von Leukämie mit Röntgenstrahlen behandelt. Cahen.
57 Die Verwendung von Balsamum peruvianum bei der Wund-Behandlung. F. Burger.
58 Cure of Recurring Hydrocele with Adrenalin.—Eine neue Methode der Hydrocele-Behandlung. J. Rupfle.
59 Ein Apparat zur Herstellung jeder Art von Extension. E. Friedheim.
60 *Pessary Thermometer.—Bestimmung der Fieberhöhe durch Dauermessung. E. Oertmann.
61 *Breast Sucking and Bottle Sucking.—Brustsaugen und Flaschensaugen. A. Schmidt (Dresden).
62 Address at Opening of Amphitheater.—Lehren und Lernen in der Heilkunde. H. Fehling (Strassburg).
63 Polyclinic Abuse.—Zur Poliklinikenfrage. L. Heidenhain.

47. Fatigue Toxin and Antitoxin.—Weichardt is convinced that he has established the fact that the functioning muscles of warm-blooded animals form a toxin which can be separated by dialysis from the ordinary chemically definable products of disassimilation. Injection of this fatigue toxin into other animals induces the symptoms of extreme fatigue, torpor and death, the same as in animals succumbing to the effects of physical overexertion. This fatigue toxin is not found in the carcasses of unfatigued animals, and other animals injected with their muscle plasma are unaffected by it. The fatigue toxin has the properties of a true toxin, and injected in sufficient amounts causes the production of an antitoxin. This antitoxin differs from the bacterial antitoxins by its extreme stability and by the readiness with which it dialyzes. This explains the facility with which it is absorbed in the *digestive tract. It thus displays properties which adapt it* for therapeutic use as a restorative and invigorant.

49-50. Technic of Agglutination Test.—Stäubli gives illustrations of a "mixing block," etc., by which the agglutination test is simplified. He takes up a tiny drop of blood in a pipette and then fills the rest of the pipette with physiologic salt solution, centrifugalizing this mixture instead of the serum alone. Much less blood is required than by the ordinary technic. He thinks microscopic examination of the agglutination is indispensable. Tiling merely draws the blood on a scrap of blotting paper and dissolves it out again at his leisure with physiologic salt solution. Neither of the above writers regard the presence of the blood corpuscles as detracting from the accuracy of the test.

53. Suggestion and Temperature in the Tuberculous.—Köhler advises a sham injection before the true tuberculin test, to eliminate the influence of suggestion as far as possible. He also advises an occasional sham injection in the course of systematic tuberculin treatment, for the same reason. Tuberculous subjects should be guarded against emotions and moral impressions liable to raise the temperature by suggestion. A positive response to a tuberculin injection should not be estimated from the increased temperature alone, but from the general condition and changes in the local lung findings.

55-56. Roentgen Treatment of Leukemia.—Schenck's patient treated with the x-rays for severe lymphatic leukemia was only symptomatically benefited. She was 53 years old and had noted the spleen tumor for seven years. The spleen diminished in size and the leucocytes became less numerous, but the reds *also diminished in numbers* and the symptomatic improvement did not seem to retard the progress of the disease. In another case of acute leukemia the leucocytes dropped spontaneously during the week before death from 76,000 to 3,000. In the case treated with x-rays about 35 exposures of the spleen and sternum were made, the former for from 5 to 10 minutes, the latter only 4 or 5. The spleen showed no change during the first 20 exposures, but then rapidly diminished in size. Cahen reports the case of a man of 47 whose spleen was hard and so large that it almost filled the entire abdominal cavity, extending a hand breadth beyond the umbilicus on the right and above to the costal arch. The blood findings were 1 to 40. After 22 exposures to the x-rays the findings were 1 to 1,073 and the spleen had subsided until it was no longer accessible to palpation. The general health improved to correspond. The long bones were then exposed to the rays and at present, after 40 exposures in all, the patient has just been dismissed but with the understanding that constant surveillance will be necessary to maintain what has been accomplished. The exposures were from 8 to 15 minutes long, the tube hard and at a distance of about 25 cm. The leukemia had been first noticed one year before treatment was commenced.

60. Permanent Pessary Thermometer.—The advantages of a permanent thermometer in the rectum which allows the readings to be made without removal of the thermometer or without disturbing the patient, are obvious to every physician. Oertmann's illustration shows the form he recommends. It is of the same shape and size as an ordinary hemorrhoidal pessary, the mercury being in the bulging end inserted in the rectum. The maximal reading is thus obtained without disturbing the patient. The thermometer could also be made in the shape of or to be attached to an ordinary vaginal pessary.

61. Improved Nipple for Nursing Bottles.—Schmidt describes a hard rubber nipple which absolutely prevents the entrance of air into the nursing bottle, except when desired. It is also possible to regulate the amount of milk the child is getting by adjusting the nipple to regulate the negative pressure in the bottle after the infant has been sucking for a time. He thinks that this nipple approaches the ideal closely. The principal features are a roll of rubber on the inside of the nipple which prevents its being pulled over the neck of the bottle beyond a certain point. One side of the nipple below this roll is slit nearly to the roll. When the negative pressure in the bottle has reached a point where sucking becomes hard, the mother twists the nipple a trifle while the child is still sucking, and thus allows a little air to enter.

Wiener klinische Rundschau, Vienna.

Last indexed page 80.

64 (XVIII, No. 45. November 6.) Forty-six Cases of Frontal [illegible] Sinusitis.—Ueber operative besor [illegible] Ein-griffe an d [illegible] der selben. R. [illegible]
65 (No. 46.) 4 [illegible] esarea. P. T. Neustube.
66 Ueber Chloroform-Sauerstoff-Narkosen (oxygen). J. Meyer
67 *Beitrag zur chirurgischen Behandlung der Bubonen. E. Hermann.

67. Surgical Treatment of Inguinal Buboes.—Hermann treated 61 cases of bubo consecutive to hard or soft chancre by injection of a 10 per cent. glycerin emulsion of iodoform. About 8 per cent. were completely cured in less than four days; 31 per cent. in five days; 26 per cent. in six days, and a duration of from nine to ten days was observed in less than 8 per cent. He first evacuates the pus through a minute incision and then fills the cavity with the emulsion. As it is forced out by the pressure of the surrounding parts, he fills the cavity again two or three times, leaving it distended with the emulsion.

Sei-I-Kwai, Tokio.

Last indexed XLI, page 291.

68 (XXII, No. 6.) *Stature of Japanese.
70 (No. 7.) *Idiopathic Gangrene. U. Kojima. (Commenced in No. 5.)
71 (No. 8.) *Percussive Boundaries of the Lungs. K Takata
72 *A Method for Ascertaining the Presence of Carbon in the Blood of Beri-beri Patients: Ozonization the Proper Treatment for Beri-beri. Albert S. Ashmead (New York).
73 *Beri-beri Among the Chinese. Ibid.
74 (No. 9.) *Central Scotoma in Kakke. J. Komoto.
75 (XXIII, No. 1.) *The Causes of Carcinoma. A. Sata. (Commenced in XXII, No. 10.)
76 Spread of Leprosy by Mosquitoes and Fish. Albert S. Ashmead (New York).

68. **Stature of the Japanese.**—Nakamura's statistics sustain the assumption that the physique of the Japanese is advancing with the progress of the nation in general. The data cover the period of eleven years ending in 1902. An average of about 400,000 recruits were examined each year. The proportion of those 5 feet 4 inches or more in height has steadily increased from 10 to 12.67 per cent.; of those 5 feet 1.7 inches in height the proportion has increased from 31.84 to 35.06 per cent., while of those under 5 feet in height the proportion has dropped from over 20 to 16.20 per cent.

70. **Idiopathic Gangrene.**—Kojima reviews the occidental literature on this subject, and states that five Japanese monographs, with microscopic findings, have also been published. Haga's was based on 10 cases, all in males from 27 to 47 years old; Watsuji's on 5 male cases and 1 female case, the ages 31 to 48, and Tanaka's on 3 cases of gangrene of the foot and 1 of the thumb. Kojima's personal experience has included 2 cases in men, aged 44 and 48 respectively. The microscopic findings are those of sclerotic thickening of the intima of the artery and occasionally of the vein, with secondary thrombosis extending upward or downward from the area of thickening, entailing the occlusion of the vessel. The arteriosclerosis does not differ materially from ordinary arteriosclerosis, except that the subjects are younger. The gangrene is probably induced, he thinks, by predisposition, certain mechanical or chemical factors and others which produce sclerosis of the vessels. The left side is affected more frequently than the right, and males more than females. The process may run a chronic course or it may develop suddenly. Amputation is imperative when gangrene has begun, otherwise symptomatic treatment is indicated, with mercury if there is any suspicion of syphilis. (See Stevens' article in THE JOURNAL, Dec. 31, 1904, page 2033.)

71. **Percussion Outline of the Lungs.**—Takata gives diagrams of the boundaries of the lungs as determined by percussion of healthy subjects. His findings differ in several respects from those taught in the text-books.

72-73. **Carbon Dioxid Intoxication Cause of Beri-beri.**—Ashmead presents evidence to show that the charcoal braziers used all the year around in Japanese houses are the cause of beri-beri. They generate carbon dioxid, which is the more injurious from the custom of sleeping on the floor. The Chinese have beri-beri when they burn charcoal, but when they burn other fuel there is no beri-beri.

74. **Central Scotoma in Kakke.**—The central scotoma in the case described preceded the other symptoms of the kakke It was transverse elliptic in both eyes, as also the scotoma for colors. The eye findings corroborate the theory of a toxic polyneuritis as the essence of kakke.

75. **Causes of Cancer.**—Sata describes considerable experimental research which has not given any conclusive results, although suggesting the probability of a parasitic etiology. He calls attention to some of the questions to be solved before serum treatment can be practicable. Is the so-called cancer serum capable of destroying only the cancer cells, or will it simultaneously injure the normal epithelial cells which a alike in their histogenic structure, or will it not affect th cells in such vital organs as the kidneys, liver, etc.? His experiments failed to demonstrate such a specific action on certain cells with absence of action on others, as is affirmed by some French investigators. The kidney cells seem to suffer most from the action of these cytolytic sera.

Nordisches Medicinisches Archiv, Stockholm.

Last indexed XLII, pages 690 and 745.

77 (XXXVI, Internal Medicine, No. 4.) Die Diet bei der Nephritis. H. Köster.
78 *Weak Heart Action with Mitral Defects.—Ueber Herzschwäche bei Mitralfehlern. I. Stein (Copenhagen) (Commenced in No. 3.)
79 Study of the Gastric Juice.—Die Untersuchung des Magensaftes und ihre Bedeutung, illustriert durch 600 Fälle. H. P. T. Oerum (Copenhagen).
80 *Ueber Intoxikation mit per os eingenommenen Chloroform. H. Ernberg.
81 *Medical Literature of the Northland, 1902-3.
82 (Surgery, No. 4.) *Behandlung der Darm-Invagination. J. V. Wichmann (Copenhagen). (Commenced in No. 3.)
83 *Acute Suppuration in Tendon Sheaths of Palm.—Klinische Beiträge zur Kenntnis der akute septischen Eiterungen der Sehnenscheiden der Hohlhand besonders mit Rücksicht auf die Therapie. W. Forssell. (Commenced in No. 3.)
84 *Ueber die Cephalocele der Augenhöhle (of orbit). A. Stadfeldt (Copenhagen). (Commenced in No. 3.)
85 *The Limits of Hearing Capacity.—Die Grenzen der Schwerhörigkeit. V. S. Stein (Copenhagen).

78. **Weak Heart with Mitral Defects.**—Stein's clinical experience and experimental research have conclusively demonstrated, he thinks, that the chronic insufficiency of the heart in case of a mitral defect may be due to chronic infection as well as to a functional disturbance of the heart's energy. Chronic myocarditis existed in only 4 of his 13 cases, and in none of Romberg's 7, while it was dubious in one of those reported by Krehl. The danger from a rheumatic valvular defect does not lie in the possibility of chronic myocarditis—resulting from the primary rheumatism, but rather in the relative or absolute extent of the valvular defect, and in the possibility of acute or chronic reinfections.

80. **Chloroform Intoxication Per Os.**—The symptoms in the case described had their counterpart in those exhibited by rabbits after ingestion of chloroform. The patient had swallowed from 20 to 30 c.c. of chloroform. Of 47 cases recorded in the literature 28 recovered. In 11 of the fatal cases consciousness was never regained.

81. **Current Medical Literature of the Scandinavian Countries.**—The *Nordische med. Archiv* makes a specialty of very complete and reliable abstracts of all the articles published in the current periodical literature of Norway, Sweden, Denmark and Finland. The abstracts are all in German, with the original titles in full and also translated. A complete oversight of the literature of the Northland is thus afforded every one who can read German. The literary output is extensive and valuable.

82. **Treatment of Invagination.**—In 1893 Wichmann published a monograph on this subject, and now brings it down to date. He groups the statistical material in a number of instructive tables, etc. In the adult, non-operative treatment is rarely successful. Invagination occurs more frequently in the small intestine. When the colon and ileum are involved—which occurs in from 45 to 55 per cent. of the cases—reduction is impossible. Fully 45 per cent. of the total invaginations were accompanied by complications. Early primary laparatomy is the standard procedure, but he warns that it is necessary to examine the patient again in the narcosis before using the knife, as in several cases spontaneous reduction had occurred at the last moment, and, at the laparotomy, the conditions were found normal. The material reviewed includes 1,184 cases. Of the 1,049 cases in which the age was mentioned, 502 were infants, 194 were between 2 and 10, 166 between 10 and 30, and 187 over 30. In the 502 infants only 4 cases are known of total expulsion of the invaginatum. If there is incarceration, operative treatment is the only resource. Opium or morphin generally has a favorable effect in infants, as it checks the progress of the invagination, although it prevents spontaneous reduction. If a good surgical clinic is

at hand the practitioner should send the infant there at once, not even attempting any examination in narcosis, leaving this to the surgeon, as also the decision whether to use the knife or not. In the absence of a good surgeon the practitioner should remember that non-operative treatment of quite recent cases is apt to be successful, but by the second or third day such measures are liable to be dangerous and rarely cure. Manipulations, artificial distension of the large intestine with air or fluids, are liable to cause harm when the intestine has suffered from two or three days or more of invagination. The distension should be moderate and kept up for about ten minutes at a time. Hirschsprung states that these measures proved successful in 37 out of 64 children under 7 in his experience. All with invagination in the small intestine or ileocolon died. The greatest difficulty with these bloodless measures is that it is almost impossible to tell whether reduction has been accomplished or not. The tumor may subside, the bowels move several times, and yet the invagination may still persist to a slight extent and gradually assume its former proportions. Or the tumor and constipation may persist after the invagination has been completely reduced. The temperature generally rises even after reduction. The uncertainty is, therefore, great, and laparotomy is the preferable procedure in favorable surroundings. Even when the physician thinks that the reduction is complete, it is well, if possible, to place the infant in the surgeon's care for surveillance and operation, if necessary.

83. **Suppuration in Tendon Sheaths of Palm.**—Forssell reports 92 cases of tendovaginitis and bursitis and describes his method of treatment applied since 1897. The results are most excellent, compared with those obtained by other technics. He became convinced that the almost inevitable necrosis observed in cases of acute suppurative bursitis of the palm is due mainly to the great pressure exerted by the ligamentum carpi. He established further that no functional harm resulted from slitting this ligament. The action of the hand and fingers was not interfered with in the least by so doing. Consequently treatment should aim to open up the field of infection as early, extensively and as completely as possible. His series of 63 cases thus treated shows the great superiority of the measure and the fine results attained, with the absence of the mutilations formerly noted. The article is accompanied by 15 plates showing the topography of the parts, the technic and the results.

84. **Cephalocele of the Orbit.**—Stadfeldt reports a case of pulsating exophthalmus which he assumed to be a cephalocele of the posterior orbit. He gives the particulars of the 28 similar cases he was able to find in the literature. All except Holmes' case are of European origin. Seven terminated fatally; in 4 after an operation. Two of the others were complicated with hydrocephalus or deformities. In the present case the exophthalmus could be transformed into enophthalmus by pressure on the eye, paralleled by slowing of the radial pulse at the same time. The pulse dropped from 84 to 68, without any brain symptoms. Compression of the left common carotid reduced the pulsation considerably, and there was no nausea. No abnormal murmur was heard and the tension of the eyeball was normal. The pulsation was permanently reduced by ligation of the carotid near the crico-thyroid ligament, and the ptosis of the lid was much relieved by lateral tarsorrhaphy. The ligation of the carotid evidently modified the circulation in the brain and reduced the amount of fluid in the cephalocele, thus inducing great improvement, permanent for a few months to date, at least. The retrospective diagnosis of cephalocele orbitæ posterior was based on the congenital origin, the soft tumefaction, the asymmetry of the skull in general, the presence of coloboma iridis on the same side, and the slight mental and moral apathy displayed by the patient, a young woman, whose speech was rather indistinct, although she appeared to be well developed and healthy.

85. **The Limits of Hearing Capacity.**—Stein insists that a distance of 100 cm. for the whispered voice is not enough of a test for the hearing. Male artisans should be able to hear the whispered voice at 200 cm., while the range should be from 300 to 700 cm. for public or other functionaries. School children, physicians, musicians and midwives should hear the whispered voice at a distance of more than 700 cm. His article is an attempt to show that the hearing capacity required as the standard in certain occupations may be far above or below the standard required in others. He remarks that housewives can get along with a minimal standard of 150 cm. When the size of the room does not allow a test beyond a certain distance, he adds + to the figure representing the distance.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

TEXT-BOOK OF INSANITY BASED ON CLINICAL OBSERVATIONS for *Practitioners and Students of Medicine*. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the [illegible] College of Medicine, Medical Department of [illegible] St. Louis, Mo., with an Introduction by [illegible] President of the New York State Com[illegible] xvi—638. Price, $4.00 net. Philadelphia: F. A. Davis Company.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT, VENEREAL AND SEXUAL DISEASES. A Text book for Students and Practitioners. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois (the College of Physicians and Surgeons). Second Revised Edition. Illustrated with 233 Engravings and 7 Colored Plates. Cloth. Pp. xv—1008. Price $5.00 net. *Philadelphia: F. A. Davis Company.*

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M.D., Late Chief Resident Physician Philadelphia Hospital. [illegible] tion. Edited, Revised and in Parts Rewr[illegible] Brown, M.D., Assistant Dermatologist, [illegible] Including a Series on Mental Diseases [illegible] section on *Skin Diseases*. Illustrated. Leather. Pp. 779. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

C[illegible] H[illegible]. A Practical Guide to the Examination of [illegible] John C. DaCosta, Jr., [illegible] Jefferson Medical Co[illegible] Containing Nine Fu[illegible] Other Illustrations. Cloth. Pp. 591. Price, $5.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in One Volume; Profusely Illustrated; Two Color Plates; Full Indexes. Cloth. Pp. 1000. Price, $5.00. Chicago: Cleveland Press. 1905.

MANUAL OF ANTENATAL PATHOLOGY AND HYGIENE. The Embryo. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S. Edin., Lecturer on Midwifer[illegible] Medical College for Women, and Surgeon's E[illegible] Cloth. Pp. 697. Price, $5.00. Edinburgh: [illegible] ons. 1904.

ÆQUANIMITAS with Other Addresses to Medical Students, Nurses and *Practitioners* of Medicine. By William Osler, M.D., F.R.S., Professor of Medicine, Johns Hopkins University, Baltimore. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

BACTERIOLOGY AND THE PUBLIC HEALTH. By George Newman, M.D., F.R.S.E., D.P.H., Formerly Demonstrator of Bacteriology in King's College, London. Illustrated. Third Edition. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

A MANUAL OF PRACTICA[illegible] By George A. Berry, M.B., F.R.C.S. Ed., Seni[illegible] Royal Infirmary. With 223 Illustrations, [illegible] Drawings. Cloth. Pp. 570. Price, $3.00. [illegible] pincott Co. 1905.

TEN LECTURES ON BIOCHEMISTRY OF MUSCLE AND NERVE. By W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. With Illustrations. Cloth. Pp. 160. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

FOURTH ANNUAL REPORT OF THE NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN for the Year Ending Sept. 30, 1904. Hospital Located at Tarrytown, N. Y. Paper. Pp. 30. Albany: J. B. Lyon Co. 1904.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE OF THE UNITED STATES. For the Fiscal Year 1904. Cloth. Pp. 675. Washington: Government Printing Office.

PNEUMONIA AND PNEUMOCOCCUS INFECTIONS. By Robert B. Preble, A.B., M.D., Professor of Medicine, Northwestern University. Illustrated. Cloth. Pp. 211. Price, $1.00. Chicago: Cloyd J. Head & Co. 1905.

PUBLIC, SOCIETY AND SCHOOL LIBRARIES. U. S. Bureau of Education. Chapter XVIII. Paper. Pp. 1017. Washington: The Government Printing Office. 1904.

THIRTY-FIFTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Cloth. Pp. 646. Boston: Wright & Potter Printing Co. 1904.

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Original Articles.

THE NATURE AND SIGNIFICANCE OF LEUCOCYTOSIS.*

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When Cohnheim demonstrated that inflammation and suppuration are due to an emigration of the white corpuscles, a great advance was made in pathology. Since then the importance of the white blood corpuscles has been increasing with each year.

CELL TYPES.

If leucocytes consisted of but a single variety of cells, with common functions, the study of leucocytosis would be reduced to a simple process. It would then be sufficient simply to ascertain the degree of leucocytosis by estimating the total number of leucocytes to a cubic millimeter of blood.

It is well known, however, that the white blood corpuscles consist of several more or less distinct varieties. Many attempts have been made to differentiate these types, resulting in not a little confusion in the nomenclature thus introduced.

1. A classification has been based on the nature of the behavior of the cells to microchemic reagents, giving us acidophile, basophile and neutrophile cells.
2. Another has been based on the form and number of nuclei, giving us small and large mononuclear, transitional, polymorphonuclear and polynuclear forms.
3. A third classification has been made in accordance with the supposed origin of each type, giving lymphocytes, splenocytes, myelocytes and mast cells.
4. The nature of the granules has given us a fourth classification, non-granular, finely granular and coarsely granular cells.
5. A classification according to functions would probably be most useful if we knew more of their subtle nature. The functions of these small organisms are so obscure that such a classification must be left for further research to perfect. Metchnikoff, however, has made the nearest approach to a classification according to this method that has yet been attempted, and has brought to our notice phagocytes and non-phagocytic cells.

LACK OF UNIFORM STANDARDS.

In addition to a lack of uniformity in the classification of leucocytes, the relative percentages accepted as normal for each type have been given a comparatively large range of variation. There has also been a lack of uniformity among hematologists in the technic adopted. Many staining methods are in vogue, varying materially in their ability to reveal the characteristics of the cell elements, which further increases the difficulty in properly classifying cells. By adopting a definite technic uniform morphologic characteristics are revealed; a true picture of each cell type is formed, and a correct classification of leucocytes becomes an easy task.

(A) VARIATION OF THE CELL TYPES IN HEALTH.

Two factors govern the number of cells belonging to the various cell types in health as well as in disease: (*a*) The total leucocyte count, and (*b*) the relative percentages for the cell types.

Under changing conditions the normal leucocyte count may vary from 5,000 to 10,000 cells for each c.mm. of blood. These estimates are accepted as the minimum and maximum normal counts.

In health, the upper and lower percentage limits are moderately well established for each cell type. The following minimum and maximum normal percentages for the respective cell types may be accepted as representing the normal percentage range: Small lymphocytes, 22-30; large lymphocytes, 5-9; transitionals, 1-2; polymorphonuclears, 60-70; eosinophiles, 1-2.

The differential percentages taken alone are of little clinical value. It is only when the total leucocyte count is considered in connection with these percentages that the number of cells belonging to the respective cell types can be approximately estimated.

To estimate the cell variation for the respective cell types for normal blood, the calculation is made on the basis of the minimum and maximum normal leucocyte count (5,000-10,000), each count accompanied by the minimum and maximum differential percentages for each cell type. To illustrate, an estimate of the number of small lymphocytes will be made in accordance with these standards.

(*a*) The minimum normal leucocyte count (5,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 1,100 cells for each c.mm. of blood; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 1,500 cells.

(*b*) The maximum normal leucocyte count (10,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 2,200 cells; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 3,000 cells.

Therefore, according to these standards, any actual lymphocyte count that is included within these normal extremes (1,100-3,000) may be considered as falling within normal limits.

The following table gives the normal range of the cell count for each cell type, based on the foregoing normal standards:

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

TABLE 1.

	S.L.	L.L.	Trans.	Poly.	Eos.
Minimum and maximum differential percentages for each cell type..	22-39	5-9	1-2	60-70	1-2
Minimum and maximum number of cells for each cell type estimated from the minimum normal leucocyte count (5000).	1100 1500	250 4350	50 100	3000 3500	50 100
Minimum and maximum number of cells for each cell type, estimated from the maximum normal leucocyte count (10,000).	2200 3000	500 900	100 200	6000 7000	100 200

To account for the wide normal variation of the number of cells for the various cell types, as shown in Table 1, we must consider:

1. Causes which affect the actual number of leucocytes.
2. Causes which affect the relative percentages for the various cell types.

First Factor.—It seems to be fairly well established by clinical data that the total leucocyte count varies in health according to the conditions of nutrition. Healthy and vigorous individuals furnish a leucocyte count near the maximum normal limit. On the other hand, persons in feeble health, with poor digestion and assimilation, and weak resisting power, generally furnish a leucocyte count near the minimum normal limit. Consequently, under certain conditions of nutrition, a leucocyte count of 5,000 may be considered normal, while under other metabolic conditions a count of 10,000 is normal.

Second Factor.—The wide normal range for the actual number of cells belonging to the respective cell types may be further explained on the ground that in certain apparently normal individuals the minimum differential percentage is present for certain types, such a condition always being accompanied by a corresponding relative increase in the percentage of certain other types. (*a*) This percentage reciprocity is almost always found to exist between the small lymphocytes and the polymorphonuclear cells; (*b*) it may, however, exist between the small lymphocytes and the large mononuclears.

It at once becomes apparent that the percentage reciprocity so often found in cell type study exists between a non-phagocytic *cell type and some one or more of the* phagocytic types.

The prevailing tendency, when there is a deviation from the normal percentages, is a fall in the small lymphocyte percentage. A low small lymphocyte percentage may result from various causes:

(*a*) From some cause which diminishes the actual number of small lymphocytes, without being accompanied by any apparent change in the total leucocyte count.

(*b*) From an increase in the leucocyte count, without being accompanied by any material change in the actual number of small lymphocytes.

(*c*) From causes which produce both a decrease in the actual number of small lymphocytes and an increase in the total leucocyte count.

To observe the relation which these respective conditions bear to the physical state of the patient, and to ascertain if these relations possess any significance as to the state of the resisting power, are problems which should receive our closest attention.

It is apparent that with a small lymphocyte count near the minimum normal limit (1,100), accompanied by a leucocyte count close [illegible] the maximum normal limit (10,000), the relative percentage of small lymphocytes will fall to 11 per cent. Furthermore, that with a small lymphocyte count near the maximum normal limit (3,000), accompanied by a leucocyte count close to the minimum normal limit (5,000), the relative percentage of the small lymphocytes will rise to 60 per cent. Therefore, *if the normal* range for the actual number of small lymphocytes lies between the extreme limits of 1,100 and 3,000 cells, and if the normal range for the total leucocyte count lies between the extreme limits of 5,000 and 10,000, the possible relative percentage limits for the small lymphocytes will fall between 11 per cent. and 60 per cent.

The following table shows the relative percentage variations for a definite cell type count (small lymphocytes), when *accompanied* by a varying leucocyte count:

TABLE 2.

	Minimum leucocyte count, 5000. Per cent.	Average leucocyte count, 7500. Per cent.	Maximum leucocyte count, 10000. Per cent.
Minimum small lymphocyte count—1100	22	14.66	11
[1]Average small lymphocyte count—1950	39	26	19.5
Maximum small lymphocyte count—3000	60	40	30

These facts make it imperative that we should not depend on relative percentages alone, but that we should ascertain the actual number of cells belonging to each cell type if we hope to correctly interpret the relations existing between cell types, or if we hope to ascertain the true relations which the cell types bear to the body or to its inherent vital forces. Relative percentage fluctuations are affected by any influences which call for phagocytic action on the part of the cells.

AVERAGE NORMAL STANDARDS.

For practical work it is necessary to adopt definite average normal standards. For this purpose 7,500 is generally accepted as the average normal leucocyte count. And for average normal relative percentages those suggested by Kanthack have been adopted, viz.: Small lymphocytes, 26 *per cent.;* large *lymphocytes,* 7 per cent.; transitionals, 1 per cent.; polymorphonuclears, 65 per cent.; eosinophiles, 1 per cent.

This table shows the cell count for each cell type, estimated from the foregoing average normal standards:

TABLE 3.

	S.L.	L.L.	Trans.	Poly.	Eos.
Average normal leucocyte count 7500.					
Average normal differential percentage for each cell type......	26	7	1	65	1
Average normal number of cells for each cell type................	1950	525	75	4875	75

(B) VARIATION OF THE CELL TYPES IN LEUCOCYTOSIS.

For our present purpose, leucocytosis will be interpreted as an increased functional activity of the body cells. This phenomenon exists normally within narrow limits in connection with the digestive process and other physiologic activities.

The many changes which take place in the food products from the time they are introduced into the body until they are rendered suitable for cell food are the result of cell activity. The processes of life seem to come and go in rhythmic cycles. A period of rest follows a period of activity; each period of activity is again followed by rest. This is apparently a universal law. To live, an organism must eat. If it eats, it must work. If it works, it must rest. Time has been divided in accordance with this principle. Day and night, the seasons of the year, are evidence of the rhythmic cycles of life.

Digestive leucocytosis is but the evidence of this law, revealed in cell phenomena. Whatever the mode of activity or the cause of the activity, this law is found to exist. Whenever the law is broken, from whatever cause, a disequilibrium of the co-operative functions of the body is a natural result. The continuance of this resultant inharmonious relation between the co-operative functions brings about a transition from a normal to an abnormal state—a transition from health to disease.

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[1] For the average normal standards see Table 3.

Every organism, however, is endowed with an inherent tendency to obey this law, and resists any and all influences which tend to interfere with its action. The principle of self-preservation and self-protection, as universally revealed in living organisms, are but manifestations of the law of the rhythmic cycles of action and repose.

Pathogenic micro-organisms are cell foes. When they gain an entrance into the animal organism they at once antagonize, not only the fixed but the wandering cells of the body. They interfere with the normal cycle rhythm of cell life. The result is an increased and prolonged cell activity without normal quiescent states. The evidence of this constant cell activity is revealed in a continuous leucocytosis, a leucocytosis which often passes far beyond the bounds of a normal physiologic leucocytosis.

To correctly interpret a leucocytosis, one must consider the nature of the factors producing the disequilibrium of cell functions. It is but natural, therefore, that we should inquire into the nature of the cell changes found in leucocytosis, as well as the causes producing them.

It is equally important to ascertain if definite relations exist between these cell changes and the life potential of the larger organism.

The nature of the cells supplied, when an organism reacts in its own defense, may have more significance than we are inclined to give them. It can scarcely be questioned that distinct and independent functions belong to each of the cell types. It is important, therefore, to ascertain to what degree each cell group cooperates in an effort at organic self-protection.

It is generally conceded that most importance is attached to the cell types whose increase chiefly constitutes a leucocytosis. The impression prevails that the most significant cell phenomena in leucocytosis are confined to the polymorphonuclear variety. In recent studies I have been impressed with phenomena belonging to the small lymphocyte group; although not marked by such pronounced extremes as are observed in the polymorphonuclear types, they at least seem to convey a weightier significance.

It is conceded that the cell types owe their origin to distinct and independent sources. This being accepted, it would be but a natural step to infer a definite relation between these cell types and the cell-generating organs producing them.

The following tables show distinctly that the great bulk of cell increase in leucocytosis belongs to types possessing phagocytic power, namely, the large mononuclear, transitional and polymorphonuclear forms. These varieties possess the power of locomotion to a marked degree and are able to englobe foreign bodies.

The sudden and often profound increase in these varieties can not, therefore, be attributed to an increased functional activity of the organs producing these cells. On the other hand, their sudden disappearance as leucocytosis subsides can not be attributed to cell lysis, since the evidence of cell death and the débris of disintegrating cells is absent.

The sudden appearance and disappearance of the cells constituting leucocytosis must, therefore, be explained on other hypotheses. The most probable explanation for the sudden and profound variation in the number of cells should conform to the very nature of these cells—based on their ability to migrate to and fro from the circulating blood, to cling to the walls of the blood vessels, and to retire to and move from the deeper organs of the body.

Their presence or absence in the circulating blood, above or below the number normally found in this medium, would, therefore, seem to be governed by the presence or absence of certain imperfectly understood chemotactic influences. In reality, it can not be claimed on any means of interpretation at our command that the actual number of cells belonging to the phagocytic types found in the circulating blood in leucocytosis bears any significant relation to the state of the organs producing them, their great numerical variation depending largely on their ability to migrate.

This, however, can not be affirmed of the other cell types not included in the phagocytic forms, namely, the small lymphocytes and the eosinophiles. The eosinophile cells are frequently entirely absent when a crisis exists in the organism sufficient to produce a leucocytosis. These cells possess the power of locomotion and may pass to other regions for specific purposes. It has been claimed on good authority, however, that during the existence of a profound infection the eosinophile cells lose their granules, which cause them in turn to lose their identity. This fact makes it difficult to establish a definite relation between the actual number of eosinophiles in the circulating blood and the state of the organs producing them, or the organism as a whole.

This leaves but one other cell type to be considered—small lymphocytes. Small lymphocytes are not endowed with the power of locomotion to any definite degree, nor the power of englobing foreign bodies. These cells, therefore, can not in any degree be considered phagocytic.

Their number in the circulating blood, therefore, can not be increased or diminished by means of any inherent power possessed by the cells themselves. They are present in large or small numbers as a result of the functional activity of the organs producing them. There seems, therefore, to be good reason for assuming a significant relation between the actual number of these cells in the blood and the state of the cell-producing organs recognized as their source.

By most authorities small lymphocytes are recognized as young cells. Cell genesis being one of the most potent and one of the most important functions of an organism, it is naturally inferred that the state of this function sustains an important relation to the resisting power of the organism.

The following study has been made for the special purpose of ascertaining the possible existence of a definite relation between the number of young cells in the circulating blood and the inherent resisting power of the patient. The clinical material thus far accumulated has not been sufficiently extensive, nor the time sufficiently long, to enable the formation of mature and positive deductions.

The differential count of the small lymphocytes in leucocytosis is almost always relatively decreased. This accounts for the statement frequently made that their actual number is decreased. I was also of this opinion until I began to estimate the actual number of cells belonging to the various cell types in health and disease.

Having collected a series of cases in which inflammatory leucocytosis existed, it became apparent that, although the relative percentage of the small lymphocytes is always reduced, their actual number frequently remains close to normal, and occasionally is found considerably increased.

In another set of cases in which leucocytosis existed, it was observed that, although the leucocytoses were well marked, the actual number of small lymphocytes to each c.mm. of blood was greatly reduced, often falling far below the minimum normal limit. It was soon recognized as a significant fact that the cases belonging to the latter class were critically ill, and often terminated fatally. This led to a more extended study of cell types for the purpose of ascertaining their diagnostic and prognostic significance.

The following cases are reported for the purpose of comparing the clinical histories with the blood changes accompanying them. The blood chart accompanying each case records the date of each blood study, accompanied by the leucocyte count, the relative percentages and the actual number of cells belonging to each cell type. Following the blood charts and clinical histories, each case is taken up separately with an attempt to interpret the associated cell type phenomena.

Case 1.—Mrs. C. W. E. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
April 13, 1898	30,600	5	11	3	81	0
		1,530	3,366	918	24,786	0
April 14, 1898	22,200	15	10	1	73	1
		3,330	2,220	222	16,206	222
April 16, 1898	9,400	24	14	3	58	1
		2,256	1,316	282	5,452	94
May 21, 1898	20,400	7	8	0	85	0
		1,428	1,632	0	17,340	0
May 22, 1898	15,700	15	13	2	70	0
		2,355	2,041	314	10,990	0
May 24, 1898	10,500	34	12	2	51	1
		3,570	1,260	210	5,355	105
May 25, 1898	9,500	48	12	0	39	1
		4,560	1,140	0	3,705	95
May 28, 1898	8,400	41	7	0	51	1
		3,444	588	0	4,284	84
June 3, 1898	7,900	41	5	0	53	1
		3,239	395	0	4,187	79

History.—On April 8, 1898, the patient was seized with pain in lower abdomen, followed by chill, vomiting, tympanitis and fever; the pains centered in the right iliac region, but no palpable tumor could be detected. The symptoms continued until April 13, when a consultation was held. A blood study revealed a leucocytosis of 30,600. April 14, leucocytosis subsiding and symptoms abating. Improvement continued for one week. May 21, liberal diet allowed, followed by slight relapse. Steady improvement for two weeks.

Operation.—June 4. A chronically inflamed appendix found, bent at a right angle and bound down by an adhesion. Drainage had taken place into the intestine. At the angle of constriction the appendiceal wall had sloughed almost to the point of perforation. Another acute attack would probably have resulted in perforation and general peritonitis. Patient made rapid recovery.

Case 2.—Mr. J. E. H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 29, 1898	22,700	10	7	1	82	0
		2,270	1,589	227	18,614	0
March 30, 1898	17,200	12	7	1	80	0
		2,064	1,204	172	13,760	0
April 1, 1898	11,700	25	8	1	65	1
		2,925	936	117	7,605	117
April 4, 1898	17,300	13	13	0	73	1
		2,249	2,249	0	12,629	173
April 5, 1898	18,400	10	7	2	81	0
		1,840	1,288	368	14,904	0
April 6, 1898	17,500	15	9	0	76	0
		2,625	1,575	0	13,300	0
April 18, 1898	9,000	28	8	9	54	1
		2,520	720	810	4860	90

History.—Symptoms developed much the same as in Case 1. After numerous consultations doubt remained as to the nature of the trouble. A blood study finally revealed a leucocytosis of 22,700, which at once excluded typhoid fever.

Treatment.—The expectant plan of treatment was adopted. Daily blood studies were made and the clinical symptoms carefully watched. A good recovery followed without operation.

Case 3.—Mr. S. N. C. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Dec. 5, 1898	23,000	10	6	0	83	1
		2,300	1,380	0	19,090	230
Dec. 6, 1898	25,000	5	4	0	90	1
		1,250	1,000	0	22,500	250
Dec. 7, 1898	19,700	Differential count not made.				
Dec. 8, 1898	16,300	Differential count not made.				
Dec. 10, 1898	14,800	8	10	0	80	2
		1,184	1,480	0	11,840	296

History.—In this case the trouble was recognized as appendicitis from the beginning. Patient's previous health had been impaired. Operation advised, but refused.

Treatment.—Expectant plan of treatment followed. The leucocytosis slowly subsided, but with each day the patient's strength seemed to be diminishing. Slow recovery without operation.

Case 4.—Miss H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 22, 1903	28,000	5	4	1	90	0
		1,400	1,120	280	25,200	0

History.—Patient treated for typhoid fever. At the expiration of two weeks, the symptoms being somewhat unusual, a blood study was requested, which revealed a leucocytosis of 28,000.

Treatment.—Patient immediately sent to hospital and operated on. Perforated, gangrenous appendix found and a large quantity of pus diffused throughout the abdominal cavity. Speedy recovery followed.

Case 5.—Mr. H. D. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
July 30, 1897		5	5	0	90	0
Aug. 2, 1897		4	6	2	88	0
Aug. 4, 1897	47,500	7	5	1	87	0
		3,325	2,375	475	41,325	
Aug. 5, 1897		5	4	0	91	6

History.—The symptoms were obscure from the beginning, resembling in some respects both typhoid fever and appendicitis. A surgeon was called early in the attack and remained in attendance. Frequent examinations failed to reveal tenderness or induration in region of appendix.

Blood Examination.—The prevailing opinion favored typhoid until August 2, when blood films were taken, a study of which indicated a distinct leucocytosis. A second differential blood count gave evidence of a distinct leucocytosis. On August 4 a third blood study revealed a leucocytosis of 47,500. A careful examination at this time revealed a deep-seated tenderness in the right pelvis posteriorly, near the spine.

Treatment.—An immediate operation was suggested, but refused by the family. Consent was finally given and operation performed thirty-six hours later. A retroverted appendix with extensive gangrene and perforation, with large quantities of fecal pus in abdominal cavity, told the story which the leucocytosis had foretold six days before. Death speedily followed operation.

Case 6.—Mr. J. H. S. Convalescent tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 21, 1898	18,200	15	13	2	50	20
		2,730	2,366	364	9,100	3,640
March 28, 1898	8,000	21	9	2	51	17
		1,680	720	160	4,080	1,360
Oct. 24, 1902		24	9	1	63	3

History.—Inflammatory leucocytosis developing in a tuberculous patient well advanced in convalescence, the result of a self-administered hypodermic injection of serum. Leucocytosis rapidly subsided. Patient continued to improve, and four years and six months later all evidence of the disease had disappeared.

Case 7.—Mr. A. T. C. Advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 17, 1898	15,000	8	13	2	73	4
		1,200	1,950	300	10,950	600
April 1, 1898	10,500	14	10	1	71	4
		1,470	1,050	105	7,455	420

History.—Acute moderate leucocytosis similar to that observed in Case 6, and produced in a similar manner. This patient, however, was well advanced in tuberculosis. The patient failed rapidly and died six months later.

CASE 8.—Mr. J. L. G. Pneumonia associated with advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 20, 1900....		4	9	1	86	0
Oct. 22, 1900....		4	9	2	85	0
Oct. 23, 1900....	16,700	2	6	0	92	0
		334	1,002	0	15,364	0

History.—Patient in advanced stage of tuberculosis. After exposure pneumonia developed, with rapidly fatal termination.

CASE 9.—Mrs. F. E. S. Pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Jan. 12, 1903....	25,000	9	5	1	84	1
		2,250	1,250	250	21,000	250
Jan. 13, 1903....	29,000	3	6	1	90	0
		870	1,740	290	26,100	0
Jan. 15, 1903....	33,000	4	6	1	89	0
		1,320	1,980	330	29,370	0
Jan. 17, 1903....	10,000	6	6	3	85	0
		600	600	300	8,500	0
Jan. 19, 1903....	20,000	9	5	1	85	0
		1,800	1,000	200	17,000	0
Jan. 21, 1903....	14,000	11	9	1	78	1
		1,540	1,260	140	10,920	140
Jan. 22, 1903....	16,000	6	11	1	82	0
		960	1,760	160	13,120	0
Jan. 27, 1903....	21,500	4	6	1	89	0
		860	1,290	215	19,135	0
Jan. 28, 1903....	18,000	4	6	1	89	0
		720	1,080	180	16,020	0
Jan. 29, 1903....	14,000	5	3	0	92	0
		700	420	0	12,880	0
Feb. 2, 1903....	13,000	8	8	0	84	0
		1,040	1,040	0	10,920	0

History.—Patient gave a history of frequent inflammatory attacks, confined to region of right tube and ovary. Evidence of an acute attack developed about one week before date of first blood study, accompanied by clinical symptoms of increasing severity. On January 12 the following clinical picture was given: High fever, rapid pulse, occasional chills, severe pain; symptoms continued to increase until January 15, when operation was performed.

Right ovary and tube were seriously involved, but the inflammatory condition was apparently localized. January 19 to 21, slight evidence of reaction. January 22, symptoms indicating a very critical condition, which continued with no evidence of improvement. Patient died February 23, twenty-four hours after the last blood study.

CASE 10.—Mrs. U. H. B. Subacute pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
May 13, 1904....	19,000	11	9	2	78	0
		2,090	1,710	380	14,820	0
May 17, 1904....	27,000	8	5	1	86	0
		2,160	1,350	270	23,220	0

History.—Frequent attacks of pelvic inflammation. At the time of the blood study the patient had been confined to her bed for several days. The right tube was involved and the pelvic organs were cemented in a solid mass. Resolution was rapid. Recovery without operation.

INTERPRETATION OF CELL TYPE PHENOMENA.

It becomes apparent, on inspecting the blood charts of the foregoing cases presenting leucocytosis, that in certain cell types the actual count shows a more or less pronounced decrease, while for certain other types the count shows a pronounced increase.

The types showing a decrease invariably belong to the non-phagocytic groups (small lymphocytes and eosinophiles), while the types showing an increase belong to the phagocytic groups (large mononuclear, transitional and polymorphonuclear).

The interpretations and deductions which follow are founded on the following premises:

(*a*) That a leucocytosis is the evidence of an effort on the part of an organism to protect itself.

(*b*) That the cells supplied in a leucocytosis belong chiefly to the phagocytic groups.

(*c*) That the small lymphocytes, being non-phagocytic cells, indicate the condition of the organism's defense, and therefore may serve as a means of estimating the ability of the organism to endure a severe or prolonged resistance. In other words, the leucocytosis indicates the fighting strength of an organism, and the number of small lymphocytes indicates the character of the endurance.

For the purpose of ascertaining the value of these cell type phenomena a brief review of the foregoing cases will follow. In making comparisons and interpretations it will be necessary to refer frequently to Tables 1 and 3.

Case 1, April 13, presents a well-marked leucocytosis (30,600), accompanied by a small lymphocyte count close to the average normal standard (1,530), indicating a severe infection and a strong resisting power. April 14, presents a diminishing leucocytosis (22,200), accompanied by a pronounced increase in the small lymphocyte count (3,330), passing above the maximum normal limit (3,000), indicating diminishing infection and an increasing resisting power. April 16, presents a leucocyte count close to normal (9,400), accompanied by a slight fall in the small lymphocyte count (2,256), but considerably above the average normal standard (1,950). April 21, again presents a moderate leucocytosis (20,400), accompanied by a reduced small lymphocyte count (1,425), indicating a relapse. May 22, to the end of the case history, presents a decreasing leucocytosis and an increasing small lymphocyte count, passing above the maximum normal limit, indicating a decrease of the infection and a marked increase in the resisting power. Verification: Patient made a good recovery after operation.

Case 2 presents a fluctuating leucocytosis of moderate degree, accompanied by a small lymphocyte count ranging,continuously between the average and maximum normal standard (1,950 to 3,000). Interpretation: Moderate infection and good resisting power.

Case 3, December 5, presents a well-established leucocytosis, accompanied by a small lymphocyte count above the average normal standard. December 6, slight increase in the leucocytosis and a distinct fall in the small lymphocyte count, indicating an increased infection and a diminished resisting power. December 10, diminishing leucocytosis and a small lymphocyte count close to the minimum normal standard, indicating a decrease in the infection, with a weak resisting power. Verification: Subsequent recovery after slow convalescence.

Case 4, October 22, presents a well-marked leucocytosis, accompanied by a moderately low small lymphocyte count. Interpretation: Infection moderate, resisting power good; verified by speedy recovery after operation.

Case 5, August 4, leucocytosis profound, small lymphocyte count high, infection severe, resisting power good. A blood study was not made after the infection became general, hence the state of the leucocytosis and the small lymphocyte count at this time is not known.

Too much emphasis can not be placed on the fact that the location and nature of the lesion should always be considered in connection with a leucocyte study. A leucocyte count ever so high, or a small lymphocyte count ever so great, will avail but little if the warnings they give are unheeded until the infection becomes so extensively spread that it has gone beyond the power of any leucocytosis to check, or the strongest resisting power to overcome. Except for the perforation in this case, which permitted the development of a general infection, the prognosis would probably have been favorable.

Case 6, March 21, presents a moderate leucocytosis, accompanied by a small lymphocyte count close to the maximum normal limit: Interpretation: Moderate infection, good resisting power; confirmed by ultimate recovery.

Case 7, March 17, presents a moderate leucocytosis, accompanied by a small lymphocyte count reduced close to the minimum normal limit. Interpretation: Moderate infection and feeble resisting power.

Comment: A comparison of Cases 6 and 7 reveals interesting facts. Both cases are accompanied by a moderate leucocytosis; Case 6 accompanied by a small lymphocyte count 780 above average normal, and Case 7 accompanied by a small lymphocyte count 750 below the average normal standard. The ultimate recovery of Case 6 and the rapidly fatal termination of Case 7 emphasize the significance of the small lymphocyte counts.

Case 8 presents moderate leucocytosis and very low small lymphocyte count. Interpretation: Profound sepsis, very feeble resisting power; case terminated fatally.

Case 9, January 12, presents a well-marked leucocytosis, accompanied by a small lymphocyte count above the average normal, indicating a severe infection and a moderate resisting power. As the case progressed, January 13 to 15, the leucocytosis increased and the small lymphocyte count diminished, indicating an increase in the virulence of the infection and a decrease in the resisting power. January 17, after the operation, the degree of leucocytosis diminished materially and the small lymphocyte count fell to a very low point. January 19 to 21, leucocytosis slightly increased, with distinct increase in the small lymphocyte count, indicating an effort to react. After January 21 the leucocytosis remained practically unchanged, but the small lymphocyte count again fell to a dangerously low point, with no apparent ability to react.

Case 10, May 13, presents a moderate leucocytosis, accompanied by a small lymphocyte count above the average normal standard; May 17, presents a distinct increase in the leucocytosis and a slight increase in the small lymphocyte count. Interpretation: Fighting strength and endurance good; confirmed by a speedy recovery.

RELATION BETWEEN THE SMALL LYMPHOCYTE COUNT AND LEUCOCYTOSIS.

The foregoing interpretations of the cell type phenomena presented in leucocytosis are based on the following possible relations between the small lymphocyte count and the degree and course of the leucocytosis:

A. The Relation of the Small Lymphocyte Count to a High or an Increasing Leucocytosis.—1. A high or increasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulency, accompanied by (*b*) a high or increasing resisting power.

2. A high or increasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulence, accompanied by (*b*) a low or diminishing resisting power.

B. The Relation of the Small Lymphocyte Count to a Low or a Decreasing Leucocytosis.—3. A low or decreasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of a low or decreasing virulence, accompanied by (*b*) a high or increasing resisting power.

4. A low or decreasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of a high or increasing virulence, accompanied by (*b*) a low or decreasing resisting power.

The actual number of small lymphocytes may be reduced to a very low point for a short period, but unless they soon show a tendency to materially increase in number, we must infer that the power to react has been exhausted. This observation seems to hold true notwithstanding the leucocytosis may remain at a very high point.

The resisting power of an organism is measured not so much by the degree of the leucocytosis as by the relation of the cell types to the leucocytosis (compare Cases 5 and 6).

It is probably true that each individual is a law unto himself as to his ability to respond in the production of a leucocytosis. The number of leucocytes held in reserve in the deeper tissues, ready to appear in a general call for co-operation, probably varies with each individual. The degree of leucocytosis necessary to protect any particular individual will depend on the nature of the infection. The infection may be too weak to stimulate a pronounced antagonism on the part of the leucocytes. On the other hand, it may be hypertoxic and paralyze the phagocytic or combative power of the cells. The nature of the infection, therefore, is a most essential factor in considering the development of the degree of leucocytosis. This will probably account for the existence of certain infections, without an attending leucocytosis, such as is found in typhoid fever and tuberculosis.

C. Variation of the Cell Types in Abnormal Blood States Unaccompanied by Leucocytosis.—Many important diseases are unaccompanied by leucocytosis, and yet the blood is characterized by pronounced cell type changes. Very little attention has been given to the observation of these changes with the purpose of interpreting their diagnostic or prognostic significance.

Important among the diseases unaccompanied by leucocytosis are typhoid fever and leucocytosis.

TYPHOID FEVER.

Cases 11 and 12 are typical typhoid cases, showing the relation of the cell types.

Case 11.—Mr. C. W. E. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 15, 1903....	8,000	7	5	0	88	0
		560	400	0	7,040	0

This case presents a malignant form of typhoid in which intestinal hemorrhages developed, with final perforation and death. Blood study made at the end of the sixth week revealed a small lymphocyte count far below the minimum normal standard, indicating a state of exhaustion with no power to react, confirmed by a rapidly fatal termination.

Case 12.—Mr. A. M. P. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 13, 1896....	8,500	12	15	0	70	3
		1,020	1,275	0	5,950	255

Blood study made at the end of the sixth week, when patient had already entered on convalescence. The small lymphocyte count registered near the minimum normal limit. Patient made good recovery.

The small lymphocyte counts, as shown in these two cases, become especially significant when interpreted in the light of subsequent results—the number of small lymphocytes in the convalescent case being double the number found in the case ending fatally.

TUBERCULOSIS.

Some eight years ago I became interested in the study of tuberculous blood. My attention at the beginning was confined chiefly to the morphologic appearance of the blood elements as revealed by special staining methods.

It soon became apparent that there was more than a chance relation existing between the percentages of the cell types and the actual condition of the patient. Preliminary reports have already been published on these earlier studies.[2]

After a lapse of these years and the accumulation of clinical material there has been ample opportunity to weigh the data and to arrive at deductions that should stand the test of time.

I wish to give a brief summary of 202 tuberculosis cases studied since my first report, whose subsequent histories have been followed to date. After a careful review of the blood records of these cases, accompanied by their histories as a guide to the interpretation, it became apparent that in almost every instance the small lymphocyte percentage was an accurate criterion of the real condition of the patient at the time the blood count was made. These cases have been divided into three groups, governed by the state of their small lymphocyte percentages.

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[2] Med. Rec., Sept. 5, 1896; Med. Rec., Nov. 17, 1896; The Journal A. M. A., Oct. 23, 1897.

Class 1.—This includes all cases in which the small lymphocyte percentage went to 10 per cent. or lower. The subsequent histories of these cases have been carefully gathered, with the following significant results:

Apparent recoveries	1
Convalescent	8
Disease progressing	4
Deaths	56
Total	69

It should be especially noted that for the eight cases included as convalescents, and the single case of apparent recovery, the low small lymphocyte percentage was the exception. The low percentages in these cases were found when the patient first came to Colorado, or during a temporary relapse.

Class 2.—This includes all cases in which the small lymphocyte count was never found to pass above 20 per cent. or below 10 per cent. It should be noted that only a single blood study was made for a number of cases included in this class. Had repeated studies been made, higher counts would no doubt have been found in those showing apparent recovery or marked convalescence, and lower counts in those terminating fatally, or in which the disease advanced. Results to date:

Apparent recoveries	3
Convalescents	11
Disease progressing	7
Deaths	32
Total	53

Class 3.—This includes all cases in which the small lymphocyte count was found at any time to pass above 20 per cent. Results to date:

Apparent recoveries	39
Convalescents	15
Disease progressing	4
Deaths	22
Total	80

For the 22 fatal cases in this class the high small lymphocyte count was exceptional in 12; three made marked improvement and died suddenly of pneumonia as a result of exposure; two made rapid improvement and relapsed after assuming heavy business responsibilities before convalescence had been well established, and one died as the result of an operation.

CELL TYPE PHENOMENA IN TUBERCULOSIS.

(*a*) Well advanced tuberculous cases, or cases belonging to any stage of the disease, with feeble resisting power, give a low small lymphocyte count.

(*b*) Tuberculous patients well advanced in convalescence always show an increasing small lymphocyte count.

DEDUCTIONS.

A. Significance of a Low Small Lymphocyte Count.—(*a*) A gradual decrease in the small lymphocyte count is unfavorable. (*b*) When repeated examinations, extending over a long period, give a continuous low small lymphocyte count, an unfavorable prognosis is indicated. (*c*) A prevailing low small lymphocyte count, with an occasional higher count, indicates a temporary effort toward convalescence, with little chance for permanent recovery. (*d*) A gradual increase in the small lymphocyte count, with an occasional low count, indicates an uncertain convalescence.

B. Significance of a High Small Lymphocyte Count.—(*a*) A gradual increase in the small lymphocyte count is favorable. (*b*) When repeated examinations, extending over a long period, give a continuous high small lymphocyte count, a favorable prognosis is indicated.

It may be taken, therefore, as a safe conclusion: 1. That poverty in small lymphocytes exists in connection with a great impairment in body nutrition and cell metabolism. 2. That this condition exists in typhoid fever, tuberculosis, and a variety of debilitated conditions. 3. That it can not, therefore, be interpreted as being characteristic of any particular disease. 4. That whenever it exists it is always to be considered a potent factor when estimated in connection with the history of the case and the associated clinical symptoms.

On the other hand, the lymphocytosis that so frequently accompanies a well-marked convalescence, from a condition in which poverty of lymphocytes previously existed, would seem to indicate a condition of increased physiologic activity, thus corroborating Virchow's theory of a nutritive and formative hyperacidity of a convalescent organism.

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CHRONIC ARTERIAL HYPERTENSION.*

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The renewed interest in blood pressure, from a medical point of view, and the succession of articles by clinicians appearing on the subject, crowned by Janeway's book just off the press, indicate that the question is proving of more than scientific value, and that it is becoming an established element in diagnosis and treatment. The activity in this direction has necessarily been coincident with and limited by the development of practical methods for accurately estimating this symptom, and as these methods come more and more into general usage, the value of their application and the interpretation of the data derived therefrom will gradually assume their rightful position in the collective symposium of each carefully reviewed case. Two years ago, while resident at the Johns Hopkins Hospital, I emphasized the necessity for an accurate estimation of arterial tension, not only in the laboratory and in the especially desperate cases in hospitals and in operating rooms, but in the routine examinations of the general practitioner. At the same time I offered a simple modification of the Riva Rocci principle in the form of a compact portable instrument that could be conveniently used in office or visiting practice.[1]

One phase of this question is now claiming special attention. and has lately been prominently exploited by Dr. Clifford Allbutt,[2] Dr. J. H. Broadbent and Dr. Alfred Stengel, namely, the relation of arteriosclerosis to pulse tension and a differential classification of the former based in part on this relation.

With the advent of accurate clinical methods of studying pulse tension the many problems involving these conditions, which so long have been confused and obscure, are now being gradually elucidated.

The insufficiency of tactile impressions for the recognition of tension is responsible for this confusion, which will be eliminated in time by the application of exact and comparable standards of measurement. The result of this indefinite knowledge has been especially unfortunate, as it has given but slight recognition to the large group of cases which is, from a clinical standpoint, the most important, because most amenable to treatment. This group consists of those cases in which the only manifested sign of disease is an increased arterial tension, without or previous to the development of the organic changes, which alone the clinician usually recognizes as "nephritis" apoplexy, arteriosclerosis or myocarditis. It is true that in practically all these cases a certain degree of cardiac hypertrophy exists, but before the onset of dilatation this hypertrophy may be very difficult of recognition. It is with this class that my paper has principally to do.

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] This instrument I continue to find most satisfactory, now made with a 9 cm. arm-piece. This and the instruments of Stanton and Janeway are the only sphygmomanometers manufactured in this country. It is to be hoped that other instruments will be successively perfected in order to hasten the general adoption of accurate methods for the estimation of this symptom.

[2] Allbutt: Trans. Royal Med. and Chir. Soc., London, 1903.

Dr. Allbutt divides arteriosclerosis clinically from the view-point of etiology, into three classes: First, involutionary, common in old people, not necessarily dependent on high tension; second, mechanical, the result of long persistent high-blood pressure; third, toxic, resulting from lead or alcohol poisoning, or from syphilis; this form usually occurs in young persons with or without accompanying hypertension.

Primarily, I would insist on an absolute distinction between arteriosclerosis and hypertension. Arteriosclerosis is a pathologic change of tissue for which the physician has no remedy. Arterial tension is a cardiovascular function, the perversion and abnormalities of which the diagnostician can now recognize and should attempt to correct. What Dr. Osler says of cirrhosis of the liver applies to sclerosis of the blood vessels: "Many writers speaking of the curability of certain forms show a lack of appreciation of the essential condition on which the symptoms depend. So far as we have any knowledge, no remedies at our disposal can alter or renew the cicatricial connective tissue which constitutes the materia *peccans* in ordinary cirrhosis."

If we relieve a case of arteriosclerosis, with a vasodilator, we do not alter the amount of fibroid degeneration, we merely correct the hypertension, which may either bear a causal relation to the arteriosclerosis or may be associated with it merely as a distinct manifestation of a mutual causative condition. The value of an accurate and discriminating knowledge of this relationship and association between the organic change in vessel structure and the functional perversion of vascular tension is apparent when we consider that the latter is very amenable to treatment, and is a most potent factor in the production of the former incurable condition, as well as the train of other cardiovascular diseases.

Arteriosclerosis is really a pathologic condition, and has too long overshadowed and been confused with a correct recognition of hypertension as a distinct clinical entity. The more chronic hypertension is emphasized, and the more its presence is detected and its destructive tendencies corrected, the sooner will a large and increasing class of cases be brought under proper treatment; cases that now often are neglected until the kidneys pass albumin, the heart dilates, or a cerebral vessel ruptures. Only 12 per cent. of Broadbent's 16 cases of apoplexy showed senile degeneration of the cerebral vessels; the other 88 per cent. probably depended in greater part for their fatal termination on hypertension, not simply as a complicating or concomitant symptom, but as the underlying causative factor.

Almshouses and asylums afford in the subjects of senility excellent opportunities for the study of arteriosclerosis, and I have to thank the officers of those institutions in Richmond for permission to use the material. Here the arterial changes are often reflected by the poorly nourished brain in a weakened mental condition. Such an arterial alteration frequently persists for years, even at the age of 65 or 70, with an unenlarged heart, or, indeed, with cardiac atrophy, without albuminuria, and with fair general health. Apoplexy is not especially frequent in such cases, which are most typically represented by old women in whom tobacco, alcoholic nephritis, syphilis and overwork do not so frequently complicate the picture. The arterial tension does not usually exceed 140 or 160 mm. Hg, and this is not allowing for the 10 or 15 plus mm. of pressure necessary to compress the sclerosed artery. At postmortem, the arteries of both systemic and cerebral vessels may be in places so calcified as to break in the fingers; instances are not infrequent in these cases of such interference of circulation as to induce dry gangrene of an extremity. These patients may undergo a serious amputation, or perhaps several, and may live for years.

Let us consider quite a different group, typically represented by a large robust-looking man in active successful business life. He may be between 45 and 55, temperate as to alcoholic indulgence, and eats, as he says with some pride, three or even four large meals a day. He is readily accepted for life insurance, and the examiner probably adds in his zeal some complimentary additional remark to the fact that the applicant is an unusually fine specimen. Yet in from two to five years that man may be waterlogged and exhibit embryocardia, or his family physician is surprised to find albumin in the urine, or else without warning he may suffer a stroke of apoplexy, or some evening acute dilatation after dinner may demand payment of the policy. Postmortem, the arteries, excepting a few slight areas of degeneration in the aorta, some dilatation of the cerebral vessels, and more or less hypertrophy of the media in the systemic vessels, are normal. If it is quite true that a "man is as old as his arteries," why should this man die of vascular disease at 50, and another live with pipe-stem arteries for several decades past 60? As a matter of fact, the most extreme grades of arteriosclerosis and calcification are frequently found in those who have outlived the allotted time of man, and who finally die of old age or of a secondary infection, and do not seem particularly prone to fatal forms of vascular disease. Of course, where the sclerosis involves the valves of the heart, the case is quite different, and here the sclerosis, by inducing insufficiency, is the immediate cause of the progressively downward sequence. Further, except in the localized disease of syphilis or during the weakened transition period of beginning degeneration, the thickened vessels of advanced sclerosis do not seem especially to lack resistance, as evidenced, for instance, by the incidence of aneurismal formation.

Hence we must look farther than the arterial wall, *per se*, or the heart, for the primary etiologic factor in many of these cases of early cardiovascular failure. In an examination of a number of cases, there is one symptom which is common to them all; when removed, it is followed by improvement; it increases *pari passu* with the progress of the disease; when artificially increased, it renders the disease worse. This symptom is hypertension, and it thus fulfills the requirements of a causal agent. Some of these patients have sclerosed arteries, but not the majority; some pass albumin in the urine, but only a few; yet all will register a pressure over 160 mm. Hg, and many over 180 mm. Hg.

Furthermore, we know the members, especially the males, of certain families, inherit a tendency toward the early development of this class of cardiovascular and renal disease, and for several generations two-thirds of the males may die before 60 of Bright's disease, apoplexy or heart disease. The members of such families almost invariably show more or less marked hypertension long before any organic lesion is made manifest.

The hypertensive diathesis, if I may use such an expression, is far more clear-cut and definite a condition than the strumous or uric-acid diathesis, of which we hear so much, and it should be so recognized. We can not estimate the tendency to tubercular disease nor to gout, but we can accurately determine the degree of hypertension, and what is better, follow year by year its progress and regulate its tendencies. We are not correct, then, in saying that a "man is as old as his arteries," but we can, I believe, usually prophesy that, other things being equal, longevity will be in inverse proportion to pulse tension.

Broadly speaking, of course, we may not divide organic from functional disease, as we must believe that there always exists some fundamental alteration in structure to account for every functional derangement. However, in the present indefinite state of our knowledge concerning the molecular alterations in living protoplasm, we may still be permitted, for the sake of clearness, a division which later researches may prohibit. In considering the possible underlying causal factors which produce this perversion of function, we find they fall under four main headings, which suggest a clinical classification of chronic hypertension from an etiologic standpoint, as follows: First, arteriosclerosis; second, cardiac, pulmonary, and cerebral compensatory; third, toxic; fourth, primary.

Necessarily, where such a classification of a chronic condition is attempted, the divisions will frequently overlap where more than one causal element is concerned in any fully developed case; for once given a disturbance of function, it may disorder the normal function of other organs, which, in turn, react on the primary condition. Nevertheless, this is the most fruitful method of studying a non-specific disease from a practical clinical point of view, as a recognition of the proper causal agents in any one case gives the only clue toward rational treatment. Thus etiology, though perhaps not admitting such absolutely distinct divisions, is a better basis for clinical classification than symptomology, pathology or empirical therapy.

Arteriosclerosis seems in some cases, perhaps especially in those where the small arterioles are involved, to cause a rise in tension through increased peripheral resistance. In the cases where the larger vessels are markedly affected, there may be no rise in tension.

For many years Dr. Allbutt and Dr. Broadbent alone have opposed the view that nearly all cases of hypertension fall under this head. Dr. Allbutt's classification is distinctly of arteriosclerosis, and must not be confused as representing hypertension. In going over the cases in the Richmond almshouses, few of the examples of advanced sclerosis showed a pressure over 160 mm. Hg, and one case, presenting probably the most advanced sclerosis of any seen, had a pressure in the brachial of 120 mm. Hg. The radial artery seemed to the touch as though made of quill, and was circled by marked ridges and rings. This woman was over 70, and is still active, though her mental condition showed marked senile weakening. The arteries in this case were not tortuous, but almost straight. This calls attention to distinction between actual degenerative sclerosis and the bending and thickening of the artery due to hypertension.

Many marked cases of sclerosis show no tortuosity at all, but, on the other hand, cases with persistent high-blood pressure, almost invariably show bending of the artery, with thickening of the walls, and this may be independent of any marked evidence of sclerosis. Where there is both bending and sclerosis, it would seem probable that this bending had occurred primarily from hypertension, and that the sclerosis had followed as secondary degeneration. It is not by any means correct, then, to consider all thickened tortuous arteries as examples of arteriosclerosis, as is so frequently done. As a matter of fact, early sclerosis seems to prevent marked tortuosity, as one would naturally expect from the relative elasticity of sclerosed and of normal artery wall.

I believe that many cases of thickened tortuous arteries, which are spoken of as cases of arteriosclerosis, are in reality cases of hypertension, with consequent hypertrophy and stretching of the wall, just as the heart hypertrophies and dilates, and that the presence of sclerosis should be considered an independent complicating condition rather than an essential factor. That hypertension favors and may even induce the development of arteriosclerosis, is unquestioned, but to designate every case of thickened bent arteries as an example of arteriosclerosis is a mistaken diagnosis, based on the not infrequent error of taking a resulting condition as the primary factor, especially where the true causal agent is not easily determined.

By the aid of more accurate clinical observation on pulse tension and on arteriosclerosis, I believe the latter will be found to occupy a much less important position in diagnosis and in prognosis than it obtains at present, and that the former will assume more and more of the responsibility of the various symptoms and terminal complications that are now credited to arteriosclerosis. According to my observations, cases of marked hypertension do not usually live long enough to develop a very high grade of arteriosclerosis.

The blood vessels of the brain are frequently unable to withstand rupture by hypertrophy, the heart is apt to dilate, or the kidneys to suffer serious damage, and this before the arterial degeneration has assumed an advanced condition.

The prognosis, in the case of a robust-looking man of 55, with a blood pressure of 200 mm. Hg, even with no arteriosclerosis, is not so good as in the case of a man of 65, with marked sclerosis and a blood pressure of 130 mm. Hg. The former is in daily danger of apoplexy or of cardiac dilatation, while the latter lives along year after year apparently unchanged.

The source of danger in the former case is not primarily the thickened artery or the arteriosclerosis, as the condition is frequently spoken of, but the hypertension. The thickened artery is a physiologic development for self-protection, rather than a source of danger, just as is the cardiac hypertrophy in a case of aortic insufficiency. If the heart and arteries are able to meet the demands of the hypertension, they may endure the additional strain for years. So that, though we must give hypertension a prominent place in the etiology of arteriosclerosis, and conversely arteriosclerosis must be credited as a causal element in many cases of hypertension, the two conditions frequently interacting in a vicious circle, nevertheless we should carefully distinguish the one from the other.

Another group comprises those cases in which hypertension is dependent on cardiac hypertrophy, either from chronic muscular overexertion or from valvular disease, or on pulmonary obstruction, or cerebral compression. Cardiac hypertrophy is a necessary complication of hypertension; they interact on one another, each augmenting the other. But there are definite cases in which the chronic condition of hypertension depends immediately on the enlarged heart, although the hypertrophy was originally produced by a temporary hypertension, dependent on transitory causes. For example, athletes and wornout pugilists almost invariably exhibit, previous to the final cardiac breakdown, a marked hypertension dependent on the enlarged heart, when they may have taken no violent exercise for years. There may be no sclerosis and no toxemia. The cardiac hypertrophy is merely the result of a physiologic response to the repeated temporary increase of tension from excessive physical exercise in earlier years, but sustains a chronic hypertension.

Ordinary laborers are subject to this form of hypertension. In these cases the engine has become too powerful for the rest of the machinery, which is gradually wrecked and destroyed, merely by the constant throbbing and pounding. Very large individuals are more prone to cardiac hypertrophy than the average, as the work to be accomplished is greater. Other similar cases are where the heart hypertrophies from some other temporary need for increased force, such, for instance, as a vasoconstrictor or cardiac stimulating toxin acting for sufficient period to produce hypertrophy and then being withdrawn ceases *per se* to be an immediate causal factor. From our knowledge of the temporary action of the drug, and without sufficiently prolonged clinical observation to justify a positive statement, we may suppose that prolonged use of digitalis, with its subsequent withdrawal, might present such a condition. Overindulgence in tobacco, apparently, induces cardiac hypertrophy. In the monograph by Dr. Briggs and myself, in a recent volume of The Johns Hopkins Hospital Reports, mention is made of the influence of tobacco in raising blood pressure, and it is there suggested as a causal factor in arteriosclerosis. Janeway confirms this observation. Further observation inclines me to the belief that tobacco does not primarily affect the arterial wall injuriously, but where sclerosis is induced, it is done indirectly through the induction of increased tension. I have found that many young men who smoke to excess uniformly exhibit hypertension ranging from 160 to 180 mm. Hg, and I have lately met with several cases of hypertension and cardiac hypertrophy in older men where the only etiologic factor obtainable was excessive indulgence in tobacco.

Alcohol has no such action. It is not a cardiovascular stimulant, and does not produce hypertension. As a factor in the production of hypertension, alcohol must act either indirectly by causing sclerosis of the arterial wall, as it apparently acts on the liver in cirrhosis, or else through the medium of a toxin produced by some metabolic disorder which the alcohol may have induced. This secondary toxin may either act as a vasoconstrictor, as is probably the case in alcoholic nephritis, or may directly injure the arterial walls. The alcohol itself does not act by inducing hypertension. In the production of cardiovascular disease, independent of a primary nephritis, I believe that the importance of alcohol has been exaggerated and that of tobacco relatively underestimated.

In compensated valvular insufficiencies, accompanied by cardiac hypertrophy, there is chronic hypertension at systole, even though the back-flow may induce a low diastolic pressure.

Certain cases of chronic pulmonary disease, such as emphysema, chronic fibrous changes and asthma, in which more or less obstruction to the pulmonary circulation probably occurs, are associated with high-tension pulse. Sansom is the authority for the suggestion that a chronic consolidation of a lung with high-tension pulse is probably not tuberculosis, at least in an active form, as that disease is constantly accompanied by low tension.

Certain cases of cerebral tumor produce a condition of hypertension in the systemic arteries, in order to prevent anemia of the vital centers.

In still other cases certain toxins induce hypertension by a constricting action on the arteries, either directly or through the vasomotor center; notably those contained in the blood in renal disease, in eclampsia, in diabetes, and in nicotine or lead poisoning.

Gout, syphilis and lead in part, at least, seem to cause hypertension, perhaps rather through the structural changes they produce in the arteries than through any constrictor influence. Typhoid fever causes hypertension, according to Dr. Thayer's[3] observations, apparently in the same way.

To openly avow ignorance of the exact nature of a condition does not necessarily preclude the value of its recognition nor of a tentative analysis of its manifestations. Though we are still ignorant of the exact etiology of primary pernicious anemia, the recognition of its claim to notice as a distinct disease has been productive of much good; and, further, gives a more correct and definite trend to any investigations concerning its etiology, than if it was still confused with other anemic conditions. Though the terms primary, idiopathic and autotoxic have undoubtedly been much abused, abuse should not necessarily prohibit moderate use and until more exact analyses shall permit greater accuracy, these terms will prove of assistance.

Whenever a symptom completely monopolizes the clinical picture and recurs over and over again in just the same way in the absence of any constant discoverable disease, it deserves individual recognition as a distinct clinical entity. In certain definite cases of hypertension no organic disease can be determined on as an etiologic factor, and where present evidently exists as a complication or a result, rather than as a cause of the condition.

Primary hypertension may be defined, then, as an affection in which a persistent increase in arterial tension gives rise to certain symptoms, preceding the development of any discoverable organic disease, unassociated with any constant pathologic lesion, and which.

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[3] Thayer: Jour. Med. Scien., March, 1904.

finally, produces organic changes, particularly in the heart, blood vessels and kidneys.

ETIOLOGY.

Heredity apparently plays an important part in the production of this affection. Certain families show a marked tendency to the early development of cardiovascular and renal diseases, the organic changes in the majority of cases being antedated by a gradual rise in arterial tension. This tendency is particularly common among the males of such families.

Between the ages of 45 and 60, these men begin to show signs of the wear and tear of life, while many of their compatriots are still in their prime. Advanced grades of arteriosclerosis are not common. The condition is particularly associated with certain forms of gastrointestinal intoxication, this tendency being present in two distinct types; one represented by the large plethoric individual who eats inordinately; the other by the sallow poorly nourished dyspeptic, in whom the catarrhal enteritis and defective elimination induce a condition of chronic toxemia. In both instances the condition is one of autotoxic contraction of the arteries; the former, with normal quality of digestion, poisons himself by the mere excess of digestive and bacterial products above the needs of healthy nutrition; in the latter, faulty digestion and disordered assimilation give favorable opportunity for the absorption of putrefactive products instead of the normal products of digestion.

Constipation in itself is not necessarily accompanied by toxemia, and, therefore, does not necessarily induce hypertension. Purgation as a means of elimination is a most valuable adjunct to the treatment of many toxemias, but the mere fact that the bowels do not move every day by no means indicates toxemia. Indeed, in many cases of extreme constipation, where the bowels are not emptied more than once in a week or so, there is no subjective symptoms of poisoning and no hypertension. The very sluggishness of the intestinal movements indicates a paucity of the decomposition products which normally stimulate peristalsis.[4] So far from the failure to defecate in these cases being a cause of injury, it is merely an indication of unusual freedom from a possible source of intoxication. Such instances are best illustrated among the poorer classes, where all the nourishing elements in the insufficient food supply are eagerly seized on by the healthy digestive apparatus and quickly absorbed, so that nothing is left by the time the colon is reached to afford media for the production of the bacterial products which normally induce expulsion. Of course, where digestive disturbances or excess in eating encourage undue bacterial decomposition, the constipation becomes a very active factor in increasing the amount of toxins absorbed.

Some people can regularly have intervals of a week or more without a stool and keep in excellent health; others suffer headache, giddiness and nausea, and exhibit marked increase in pulse tension if a single morning evacuation is omitted. Large frequent stools, which are a necessity for the wealthy gourmand or dyspeptic, would be for the healthy active poor an unnecessary extravagance.

Mental strain undoubtedly plays an important part in the development of hypertension. Mosso has shown that emotion causes a spasmodic contraction of the arterioles. Continued care, worry and emotion induce chronic hypertension, and this influence is especially shown by the prevalence of the disease in those occupations to which they are incident. Huchard[5] says: "Strong and repeated emotions can induce cardiac affections by their incessant action on the peripheral circulation; this is one of the reasons why, according to my observations, arteriosclerosis is so frequent in members of our profession. It is the disease of medical practitioners, because their profession is associated with emotional and nervous overstrain; for the same reasons, it is a disease of politicians and financiers."

Here, again, as so often occurs in the literature of vascular disease, arteriosclerosis and hypertension are apparently used either synonymously or with a very indistinct idea of their relation to each other.

Sedentary habits prevent elimination, and so add materially to the toxic and hypertensive tendency. This is especially true of the eliminative functions of the skin and the intestines. The relation of renal function and changes in tension within physiologic limits is so obscure that it can not be opened here. The subject has been carefully studied by Dr. Erlanger of the Johns Hopkins Hospital, and his results will be published later in the *Johns Hopkins Bulletin.*

Furthermore, the complicating factors of any of the other causes of hypertension, previously stated, will, of course, augment the primary condition, and both hasten and direct its termination.

PATHOLOGY.

I have begun further studies of the pathology of this condition, which will be detailed later. The most frequent and striking findings are cardiac hypertrophy and dilatation, hyperplasia of the media in the systemic arteries, which may be markedly tortuous; thinning of the cerebral arteries; hypertrophy and engorgement of the kidney, the so-called arteriosclerotic kidney, or in later cases atrophic cirrhosis of the kidney, small granular kidney.

SYMPTOMS.

Symptoms may be divided into two stages—before and after the onset of complications—which give definite signs in one or in another organ. In those cases, especially referable to autointoxication of digestive origin, the first symptoms may be merely lassitude, constipation, headache, throbbing of the temples on exertion, and the patient may look run down, and a tonic may seem to be indicated. These patients are usually young adult males, perhaps of neurotic tendency, and often excessive users of tobacco. No signs of organic disease can be made out. The pressure will average from 40 to 60 mm. Hg above normal. Frequently the first symptoms are complained of between 40 and 50 years of age. There may be slight mental changes and noticeable irritability of temper, and a tendency to become low-spirited and morose. The sleep is uneasy, and may be occasionally interrupted shortly after retiring, in a struggle for breath or with merely a distressed feeling around the heart. Heavy suppers and high living in general is not borne so well, and may be associated with dyspeptic symptoms. Exertion more readily induces shortness of breath.

. Preliminary symptoms may be absent or neglected until an attack of vertigo, acute bronchorrhea, cardiac dilatation or apoplexy demand medical treatment, or end the case suddenly. Perhaps the applicant seeks his physician in surprise at being declined by some life-insurance company because of a trace of albumin in his urine. These cases average a pressure of 160 to 200 mm. Hg (9 cm. armpiece), and most frequently are in men in active business or professional life.

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[4] Strassburger: Ztschft. f. klin. Med., 1902, vol. xlvi, p. 413.

[5] Huchard: Maladies du Coeur, p. 78.

PHYSICAL EXAMINATION.

The one essential finding is systolic hypertension in the systemic arteries. This varies from an increase of 20 to 100 per cent. above normal. The arteries often pulsate visibly, tend to become more and more tortuous with the duration of the condition, and slow thickening. Evidence of sclerosis or of degenerated changes in the wall with hardening and ring formation is not present except inconstantly and in the later stages. Definite distinction must be made between the hypertrophied tortuous artery, so characteristic of chronic hypertension, and the hard, ringed quill or pipe-stem artery, often nearly straight, of arteriosclerosis, where an increase in tension is by no means essential. The frequent error of taking the two conditions to be evidences of the same process is to be deprecated.

After the blood current has been shut off by proximal compression, the artery of hypertension is found to be distinctly thickened, and makes a more palpable cord to roll between the finger and the bone, but the walls collapse easily, show no irregularities, and give the impression of softness in spite of the thickening. The sclerotic artery resists pressure, is irregular or ringed, and feels distinctly hard.

Professor Sansom considers when the pulse tracing shows an ample dicrotic wave, indicating on the part of the vessel lack of ability to accommodate caliber to its contents, that degenerative changes are present, rather than true muscular hypertrophy. My observations with the sphygmogram tend to confirm this deduction. Further, Dr. Oliver considers the loss of normal variation in caliber in response to changes in physiologic condition an important aid in distinguishing sclerosis. A decided loss of ability on the part of the artery to respond to vasodilator drugs is another condition which I have found associated with sclerosis.

Cardiac hypertrophy, which is always present as a physiologic response to increased peripheral resistance, in the earlier stages, and in fleshy individuals, particularly in women with pendulous breasts, may be difficult to determine definitely. Chronic hypertension is a surer indication of hypertrophy than the outline of percussion dullness.

The urine is variable. In the earlier stages with marked intoxication the urine may be of high specific gravity, and form a heavy sediment of urates. Later, with the more pronounced cardiac hypertrophy and higher tension, the blood supply to the kidney becomes excessive and the urine becomes of lower specific gravity, and may at times of extra strain show a trace of albumin. A systemic pressure in the neighborhood of 200 mm. Hg, obtained with a 9 cm. band, seems to indicate approximately the limit of renal resistance to albuminous exudation. The kidney is now enlarged and reddened, the so-called arteriosclerotic kidney, evidently not a true primary sclerosis. Later, sclerosis may develop, as in all chronic congestions, and the kidney may pass on to the stage of cirrhosis or small granular kidney.

Such a condition could not properly be called Bright's disease or nephritis. To quote from Mahommed,[6] the term is too general for scientific use, for, as applied by some, it has become synonymous with albuminuria. My observations tend to confirm his views that intermittent or chronic albuminuria does not necessarily mean nephritis, though his tendency to describe all urinary changes, usually attributed to nephritis as the result of hypertension, is extreme. But the element of truth in his deduction should not lose its value on account of the radical extent to which it is applied.

His crude methods of measuring tension with the sphygmogram led him to this significant conclusion which, on account of the coincidence with the results of my own work, I take the liberty of quoting at some length: "First, previous to the commencement of any kidney change or appearance of albumin in the urine, the first condition observable is high tension in the arterial systems, due to the presence of noxious material in the blood. If this condition be allowed to continue, albumin is subsequently found, and if still unchecked or uncontrollable, Bright's disease in one of its forms appears.

"I believe that the chronic condition of increased blood supply produces increased growth of the interlobular connective tissue, and if still continued, this must result in contraction, and induration, atrophy of the tubules from constant pressure, would now ensue. This sequence of kidney changes agrees with that described by most observers. In confirmation of this view of the commencement of these changes, I have frequently observed a condition of high tension in the pulse in cases that have subsequently developed albuminuria and symptoms of cirrhosis of the kidney."

He asks, "Can the term 'inflammatory' be fairly applied to this disease?"

Anemia is not a prominent symptom. The cases, in fact, frequently are examples [illegible] fascies. Where there is pallor the anemia is apparent rather than real, caused by the peripheral constriction. Edema is a symptom of the complications, not of hypertension.

COMPLICATIONS.

Complications are determined by the organ that is least enduring of the strain. Cardiac dilatation and myocarditis, albuminuria, arteriosclerosis, apoplexy and bronchorrhea occur about as in order named. The compensatory cardiac hypertrophy can correct the evil for a certain length of time, but sooner or later must fail to endure the ever-increasing load.

Dana says: "It has been shown in many cases before the onset of cerebral hemorrhages, there has been for some time a gradual rise in general blood pressure which has thrown an undue weight on the work of cerebral blood vessels." Finally the limit is reached, and a vessel ruptures.

In the two decades in which hypertension usually reaches its maximum—from 45 to 65—43 per cent. of all deaths from apoplexy occur.

DIAGNOSIS.

A diagnosis of chronic primary hypertension is dependent on the demonstration of a chronic increased arterial pressure and the exclusion of organic disease, or evident toxemia, which could account for it. As accurate estimations of pulse tension come into more general use, the condition will more frequently be recognized during the early stages, and before some organic manifestation attracts notice to the hypertension which will then, in most cases, probably be regarded as a symptom rather than the underlying causative factor. After several organs show marked changes the sequence of events becomes obscure.

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[6] Mahomed: Med. Chir. Trans., 1874, p. 197.

I have lately seen a case of vertigo in a financier of 60 treated by active stimulating drugs, and who died the same night of apoplexy. A course of nitrite based on an estimation of hypertension would almost surely have averted the attack. Also, I have seen a case of repeated attacks of acute pulmonary edema with intermittent albuminuria, variously diagnosed bronchitis, congestive chill, arteriosclerosis, etc., in which the pressure averaged 200 mm. Hg, and where eliminative and depressant treatment has so far prevented a further attack; also another case of so-called "weak heart," in which there was a blood pressure of 190 mm. Hg, with headache, nocturnal dyspnea, and suffocating feeling of impending death around the heart. No albuminuria nor casts nor arteriosclerosis. By reducing the tension to 160 mm., the symptoms were relieved. Except in an infectious disease, no judgment should be formed of a patient over 40 without a knowledge of the blood pressure, and the routine estimation of this symptom in every case will permit a more frequent recognition of the first stages of the primary form of hypertension.

TREATMENT.

Treatment may be divided into two parts:

First.—Early treatment where a correction of the tension usually may be accomplished by dietary and hygienic measures.

Second.—Late treatment where the administration of specific drugs supplementing the general treatment is necessary in order to overcome the condition.

The first division needs no comment here, except notice of the fact that a meat diet seems to have a very strong and direct influence on initiating and continuing a rise in arterial tension.

For the more persistent cases, where the cause can not be eradicated or where organic changes prevent restitution, we must have recourse to drugs and, fortunately, we have almost a specific for this condition.

To quinin for malaria, mercury for syphilis, iron for anemia, and adrenalin for vasomotor paralysis, we must add the nitrites for hypertension.

Drug treatment, however, should not be resorted to, except when more natural means fail, or where immediate relief is necessary (here prompt venesection is invaluable), and should be discontinued as soon as possible. In certain acute affections associated with hypertension, such as some forms of vertigo, angina pectoris, acute cardiac dilatation, tic douloureux and asthma, amyl nitrite may be inhaled quickly, preparatory to more permanent relief. The action of this drug is very transitory and ceases almost immediately with the termination of inhalation. Furthermore, the amount can be very indefinitely regulated, and the effect is proportionately uncertain. In some cases of hypertension I could discover little or no lowering of the blood pressure. In others I have observed a drop of 30 to 40 mm. Hg lasting about one to three minutes.

Nitroglycerin is likewise rather uncertain in its action and, though more constant and persistent than amyl nitrite, does not seem to deserve the prominent place it occupies in the therapeutics of various forms of hypertension. I have obtained a drop in blood pressure of 100 mm. Hg in less than ten minutes following 1/50 gr. of nitroglycerin, but there was a return to the former level of 200 mm. Hg in about an hour. In another case, after the same dose, the rhythm and tension became very irregular, and, while the rate rose to 110 from 60, there was no definite nor constant lowering of tension. There was some twitching of fingers noticed during the effect of the drug. This case and several similar ones incline me to believe that nitroglycerin must be subject to some chemical changes which may alter and impair its properties. In some cases the transitory depression only lasted 15 or 20 minutes after a hypodermic of gr. 1/100 to 1/50 nitroglycerin, and never much over an hour. The pulse is usually increased in frequency and sometimes alarmingly so. In several cases taking a 1/100 gr. triturate every three or four hours week in and week out I could find no definite effect from a single dose, nor from the aggregate doses. There seemed no instance in which the patient would not have been benefited by substituting sodium nitrite for nitroglycerin.

Sodium nitrite may lower the blood pressure for from two to three hours, occasionally as long as four. This is unaccompanied by more than a very slight increase in pulse rate. There may be a feeling of flushing and throbbing, as with other vasodilators. The reaction from 1 or 2 grains averages a fall of from 25 to 50 mm. Hg coming on rapidly in from 5 to 10 minutes on an empty stomach, and more slowly when taken after eating. Where a uniform permanent effect is desired, after meals seems the best time for administration, as the effect is not so abrupt and is more lasting.

I have obtained a fall in blood pressure from aconite, but my observations with this drug are so limited that I can not confirm Dr. Thompson's favorable report of its use as a vasodilator in nephritis.

CONCLUSIONS.

Chronic hypertension may be divided into 4 classes, according to etiology: (a) arteriosclerotic; (b) cardiac, pulmonary and cerebral compensatory; (c) toxic; (d) primary.

The primary form of hypertension deserves recognition as a distinct disease.

Early recognition of the tendency toward a progressive increase in pulse tension should prevent or delay the development of certain forms of cardiovascular and renal disease.

In correcting hypertension sodium nitrite has many advantages over nitroglycerin.

DISCUSSION.

DR. NOBLE P. BARNES, Washington, D. C., stated that vascular dilatation may be influenced by mental, physical or mechanical means. Systematic physical exercise is possibly the best method of accomplishing vascular dilatation, especially in mental and desk workers, with atonic hearts and contracted peripheral vessels. Here an hour of gymnasium work, followed by the gradually cooling shower bath every second day, will accomplish great good. Mechanical dilatation of the peripheral vessels suggests itself in the incipiency of pneumonia, convulsions of infants and conditions of shock. Counter-irritants, as the hot mustard bath or foot bath, are of recognized value in equalizing the circulation. Arteriosclerosis puts in its appearance about the time the thyroid gland begins to atrophy. As this gland has vasodilating properties, the administration of the extract might be useful in these cases. Amyl nitrite is a prompt, efficient and convenient drug, indicated in angina pectoris, epilepsy and similar emergencies. Nitroglycerin acts less promptly, but has more lasting effect; while sodium nitrite and erythrol nitrate are best for continued use, their action being less powerful and more permanent. Drugs acting centrally to produce vasodilatation most likely do so by depressing the vasoconstrictor centers.

Dr. C. E. De M. Sajous, Philadelphia, referred to the influence of the pituitary body on arterial hypertension. He said that Professor Cyon of Geneva, and more recently Masay, by stimulating this organ produced all the manifestations of increase of arterial pressure; in other words, they obtained an enormous rise of arterial pressure. The merest touch sufficed to raise the pressure, while the current brought it to a very high level. In the course of another experiment performed while studying the causes of cerebral pressure, Cyon observed that all the reflex phenomena obtained by stimulating the nasal mucous membrane, such as sneezing, coughing and increase in secretion, could not be obtained when the pituitary body had been removed.

Dr. William F. Waugh, Chicago, objected to the use of the nitrites as vasodilators for chronic cases. He said that the nitrites are well suited to meet a temporary condition and produce a sudden rise, but from none of them can be obtained a continuous effect, not even from sodium nitrite. Their effect will pass off in a half-hour at most. For conditions in which a continued effect is required veratrin is useful. Its effects may be kept up for months. Another advantage of this drug is that it presents no possibility of accumulation, as it opens all the channels of elimination.

Dr. H. C. Wood, Jr., Philadelphia, said that it has been experimentally shown that a greater amount of blood goes to the arms and legs when the mind is concentrated on them. He took exception to the statement of Dr. Cook that there is such a thing as "idiopathic" high tension, the cases called idiopathic being simply those whose cause we fail to determine. When the nitrites are employed in arterial hypertension it is for their temporary effect; their greatest use is where there is immediate danger from the vascular constriction, as in threatened apoplexy. He agreed with Dr. Cook that sodium nitrate is the best. Tetra-nitrate and potassium nitrate have been stated to be more permanent than the nitrites in their effects. Sodium iodid and potassium iodid may act, by bringing about a change in the arterial nutrition and may be valuable in prolonged administration. Diet is one of the best therapeutic measures and has an important place among other methods of treating arterial hypertension.

Dr. Wm. C. Robinson, New York, emphasized the value of veratrum viride as a permanent vasodilator and said that by this means the blood vessels can be kept dilated for weeks at a time. It has been used in nephritis and other conditions of high tension with good results. Dr. Lauder Brunton especially recommends the crude potassium nitrate, which has been found to contain a small proportion of potassium nitrite. Perhaps the good effects are due to this fact.

Dr. Joseph Clements, Nutley, N. J., stated that he has a valvular lesion of the heart, and after walking several blocks he is liable to feel distress and pain in the pericardium and in the region of the liver. He always has with him some tablets of glonoin. One of these tablets will, in two minutes, begin to ease the distress. The hypertension is quickly relieved, and he is able to go on walking, or with whatever he may have been doing, which caused the tension of the blood vessels and the distress and pain. Even standing for any length of time to speak will sometimes induce this condition, which is usually relieved on taking a tablet or two.

W. W. Tompkins, Charleston, W. Va., recently had a patient who took a pearl of amyl nitrite and crushed it in his handkerchief and inhaled it. He immediately fell as if struck on his head and had such intense vertigo that he had to go to bed and remain there for ten days. Every time he lifted his head he had vertigo and if he tried to stand he fell to the floor. This may be a case of idiosyncrasy, as Dr. Tompkins never heard of another case in which amyl nitrite acted in this way. The man did not use the drug because he needed it, but it was ordered for another member of the family and he took it on his own account to see what effect it would have.

Dr. O. T. Osborne, New Haven, Conn., agreed with Dr. Cook that the nitrites do good in these cases of hypertension by their prompt action in dilating the blood vessels and reducing tension. The iodids belong to the alterative treatment. The thyroid gland gives out a vasodilator substance and the adrenal glands give out a vasoconstrictor substance; these exercise an important influence on the circulation. The thyroid gives out an iodin substance, and we can understand how the iodin may do good when administered to these cases by stimulating the thyroid to extra secretion, especially at the age when this gland begins to atrophy. Dr. Sajous asked if the iodin stimulates the thyroid gland.

Dr. Osborne, in reply, said that all the iodids stimulate the thyroid of extra secretion, as can be demonstrated in Graves' disease.

Dr. H. W. Cook stated that, owing to want of time, he was obliged to omit the hygienic part of the treatment in reading his paper, and perhaps this has given rise to a false impression of the effects of treatment. In his experimental work he has obtained a result of a fall of 120 milligrams, lasting for two hours, from a dose of sodium nitrite. He thinks that in these cases of chronic arterial hypertension, what is needed is decreased arterial resistance rather than decreased work of the heart.

THE THERAPEUTIC VALUE OF MASSAGE IN ACUTE DISEASES.*

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The question of nutrition underlies the activity of every organ and tissue of the body. In general, we may say that nutrition is dependent on circulation, and that this is a double process, or rather a single nutrient current that becomes divided into two in the capillary regions. At the point of division it is not only distributed by two entirely distinct sets of tubes, but the rate of flow is widely different, as is the quality of the contained nutrient stream. The blood is ordinarily looked on as the great nutrient tissue of the body. It has its well-defined cells which carry on individual functions of widely different character, according to the nature of the corpuscle, but the intervening plasma, or stroma substance, lying between these cells, is the carrier of most of the nutrition that the various structures of the body need, as it is also the remover of their waste products.

The speed of the blood flow is such that material gathered from it must be withdrawn by chemical activity rather than by the physical processes of diffusion and osmosis; but as the removal of waste requires rapidity of flow, it becomes desirable that the purveyor function should be to some extent separate from the eliminative function. For this purpose the blood vessels, at the areas where the blood flow is slowest, are so constructed that they permit the blood plasma to flow through into the intercellular spaces of the various organs, and these intercellular spaces are more or less filled with this leakage material that thus bathes the cells with a nutrient fluid which moves comparatively slowly and which permits free interchange with the protoplasm of the cell. In this way nutrition is maintained.

Near the periphery of the organ or any of its segments, the intercellular spaces take the form of well-defined ducts, and these are called lymph vessels, being supplied with valves at frequent intervals that permit the movement of their contained fluid in only one direction, which is toward the periphery of the organ. When we pass beyond the limits of any individual structure, we find that the lymph ducts in general are continued toward the center of the body, while along the course of the lymph vessels, or lymphatics as they are called, are found frequent glands into which the vessels pour their contents and from which fewer lymphatics lead on to the center of the body. In some regions, as in the neck, these glands are extremely frequent, so that the lymph is strained before it has passed any great distance from its point of origin. In other regions, like the arm and leg, considerable distance may be traversed before the lymph is poured into a gland, and it is interesting and important to note here that in general these lymph glands are located in the region of joints, and usually on the flexor sides of the joints, so that any movement of the limbs, neck, etc., tends to temporarily compress the glands and also to press on the lymphatics so as to drive the lymph along toward the center of the body. This may be called a natural massage of the lymphatic area, and its importance will be noticed when we compare the edematous condition of a limb that is kept perfectly free from movement with the fine circulation of a limb that is adequately exercised through the whole range of its possible motion.

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

This brings us to speak of the causes of the lymph flow, which are, in brief, the residual or leakage pressure which is carried through from the blood, and, more important under ordinary conditions of life, mechanical pressure. Under this latter head we must classify not only the pressure created by change in form of a part by muscular contraction, but muscular pressures produced in various regions by different physical acts, as in walking, sitting, carrying burdens, etc., and also the minus pressure produced in the thorax during inspiration.

In conditions of extreme inactivity, as when we are sleeping, the lymph flow is extremely slow, because every element of propulsion is reduced in quality, the aspirations of the thorax being more constant than any of the other forces. During violent physical exercise the lymphatic flow is greatly accelerated, because every element of propulsion is pushed toward its maximum, both the heart and respiratory organs responding in direct proportion to the amount of muscular work done.

The difference in lymphatic pressure and speed of flow has been beautifully illustrated by a case that has come under my notice that is worth recording.

Patient.—A young man, aged 20, came to me with a peculiar discharge from the upper part of the thigh over an area of about 7 cm. in diameter, lying immediately below Poupart's ligament on the left side.

History.—At about 8 years of age, he had suffered from a bubonocele, the cause of which was not absolutely certain, although he thinks it was due to a blow in that region. The inflammation at this time must have been excessive, and while medical care was given the patient surgical interference was not used until the cyst burst and evacuation took place by natural methods. The disintegration of tissue must have been extensive, as indicated by the size of the cicatricial relic of the inflammation. The abscess had not invaded the abdominal integument, and the line of Poupart's ligament removed a segment of what would otherwise have been a fairly circular scar.

Examination.—This young man was apparently in perfect general physical health, and had been playing football the afternoon before I saw him in the evening. He had a towel around his thigh, which was wet, and I found it was saturated with lymph that was exuding from the cicatricial area *in perhaps* a dozen places, and there were about as many more spots that looked like small blisters, from the size of the head of an ordinary pin up to a bulla 3 mm. in diameter. He told me that all these openings that were oozing first appeared as blisters, and that if I were to open one of those blisters it would leak a fluid such as the others were discharging. I found this to be the case, and that the discharge of one of these openings would amount to a drop in about from thirty to forty seconds, some of them oozing more rapidly than others. Any one could be easily isolated by lightly pressing a tube over it, and the discharge be thus collected. On microscopic and chemical examination, this fluid was found to be pure lymph, and the case afforded an unusual opportunity to observe the influence of active and passive exercise on lymph flow. This case had repeatedly gone through this leakage process, and the patient was in no way alarmed at his condition. He knew that if he remained quiet for a period of two or three days the scar would heal over and would remain intact until he indulged in fairly vigorous exercise again. He was of active temperament, and for a period of three years I had an opportunity to observe him under normal conditions, with the lymphatic flow just beginning, as well as at its height, and while subsiding.

A study of this case under the influence of various positions and forms of activity showed that a high elevation of the leg soon caused a marked diminution in the amount of flow, and this was the quickest method of relief that would permit the healing over of the opening of the cicatricial tissue. It was also demonstrated that a massage of the muscles of the leg produced an increased flow of lymph that was continued for some little time, and that appeared to be due to two causes: First, an immediate exit of lymph due to pressure on the lymphatic vessels and lymph spaces; and, second, a prolonged secondary flow apparently due to hyperemia of the structures that were massaged. The importance of this case in demonstrating the value of appropriate massage in stimulating the flow of lymph and blood is greater than the indirect evidence produced in the diminution in the size of parts and the reduction of edematous conditions, for the time relations existing between the movements and the flow could be readily recorded.

ACTION OF MASSAGE ON THE NERVOUS SYSTEM.

A second value of massage that I wish to mention is with reference to its action on the nervous system. Here we have a complex matter that is not completely understood, but that has certain salient points so definite in character that we may properly discuss them as scientific truths.

The first feature of nerve activity that is started by massage is a sensory impression that accomplishes several things. First, the attention of the patient is diverted from the seat of pain or of discomfort, with such psychic results as directly relieve the discomfort to a greater or less degree, according to the mental poise of the patient and the ability of the masseur to establish satisfactory sensory impressions. This relief of mental attention is highly favorable to reparative action. It was demonstrated several years ago that the centering of the attention on any given part of the body, like the hand, was capable of elevating its temperature to a very considerable extent, and it has been repeatedly demonstrated that the unfavorable mental anxiety regarding the pain of a part results in increased hyperemia of the part, with corresponding increase in pain from the stretching of sensory nerve fibers throughout the area involved. The converse of this proposition must be true, that if the blood be diverted to remote parts through nervous intervention the congested area will be appreciably relieved.

Second. The vasomotor nerves react to surface impressions, as well as to muscular movements, and the blood may be diverted to remote areas by such movements as will cause a reflex dilatation of the blood vessels in these parts. It should be noted in this connection that a vasodilator action over considerable areas will tend to diminish the total blood pressure, and for this reason massage has been used with such great success in cases of valvular lesions of the heart.

Third. The deep reflexes that control normal balance between parts are kept in action so that an approximation to general health is maintained while the body is undergoing local disease—for in a sense nearly all acute diseases are local—and the healthful functioning of one part assists in the normal activity of all.

When we consider how greatly the blood supply to any given part is dependent on nerve control of the vessels leading to that part, we shall appreciate at once how an appropriate appeal to nerve centers may so far modify circulation as to give relief from pain and promote healthful repair. By appropriate massage the blood supply may be distributed fairly evenly throughout the body, and all organs remain in a fair condition for functional activity, even when acute disease is strongly tending to dam it up in some definite locality.

MASSAGE IN PROLONGED ACUTE DISEASES.

Another important result of massage in prolonged acute disease is the improved nutrition that the system has through the crowding into the nutrient circuit of the material that is naturally provided by the retrograde metamorphosis of cells throughout the body. We are taught in our elementary physiology that in periods of starvation a sheep becomes an example of carnivorous feeding because its own cells give up the material that afford nourishment to such parts as must maintain a fairly regular degree of activity, such as the heart, respiratory muscles, etc.

When the muscles are called into action by volitional movements they consume in a catabolic way the material that might be given off by diffusion and osmosis to the lymph and blood vessels, and so be carried around to nourish the tissues whose activity must be fairly regular and constant. In this way life may be prolonged when the natural nutrient canal is unable to retain or absorb and appropriate the proper nutriment for the body. This phase of massage is more important than has usually been conceded, for it gives a possibility of rest to organs that are unable to functionate and carries the system along until the natural methods are restored. This process renders available much of the fatty tissue that is stored in the skin and in the abdominal cavity, and which, if left inactive and with poor blood circulation, could never be recalled as fuel, although its primary function is that of stored food.

With the above view of the physiologic grounds for advocating massage, the question will naturally arise as to what may be the value of the art in acute diseases. Already it has won a place for itself in the treatment of chronic cases where appropriate stimulation is needed if repair is to be encouraged and facilitated. There is a certain line of cases, like the zymotic diseases, where the benefits of massage may seem more or less problematical, and as this is a field which has not been occupied by any except the more expert and careful masseurs, we must appeal to our physiology in support of this means as a rational help in the treatment of these cases, especially at certain stages of the disease. In such a condition as pneumonia or typhoid fever, where the heart action becomes a matter of solicitude, there would be absolutely no contraindication to the use of massage, if properly applied, to diminish the burden carried by the heart and thus improve the patient's condition and ability to endure the other hardships of the disease.

In typhoid fever the failure in heat elimination can be partially remedied by appropriate manipulation, but I believe that the most favorable results will be produced on the circulation and nutrition. As it is a disease that locally affects the nutrient canal and renders it unfit for its work of digestion and absorption by reason of the high temperature and inflammation of the mucous membrane and intestinal glands, it is desirable, therefore, not to require more work of this particular organ than is absolutely necessary. So we may resort to the utilization of stored food that can be brought into the circulation from storage cells as well as from the muscles themselves. This will maintain the vitality of the patient through prolonged periods without the possibility of fermentation and decomposition changes going on inside of the intestine where their products will prove specially irritating to surfaces that are already tending to break down or that have broken down and present ulcers of rodent type. We know through experience with wounds on the external surface of the body how quickly their character changes when decomposition products are brought in contact with them, and we must believe that the same changes occur in parts that are not readily open to inspection. We have proved that these products produce increased inflammation, as shown by the elevation of temperature, tympanites and the poisoning of the central nervous system that formerly so frequently resulted in active delirium, but more recently rarely reaches this condition of toxemia.

EFFECT OF EXERCISE ON THE BLOOD.

An examination into the modifications of the blood that are caused by exercise has been made by Drs. Mitchell and Babbitt of Philadelphia, and Dr. McCurdy of Springfield. Their investigations seem to show that the corpuscular element of the blood is increased by both active and passive exercise, and while this is probably due to what may be considered a more even distribution of the corpuscles throughout the vascular system, it would appear that in any form of acute diseases such an even distribution is greatly to be desired from a physiologic standpoint. In the zymotic diseases the increase of leucocytes is highly desirable, and any process that does not produce injurious effects in other respects and that will cause an increased leucocytosis, would naturally be employed.

MASSAGE IN PARALYSIS.

My principal plea for the employment of massage is for the effect which it has on the nerve centers and as an assistant to the heart by relieving it of a considerable part of its work. Where disease is long continued another condition should not be overlooked, namely, where muscular tissue is likely to undergo atrophy and cause deformity and subsequent inefficiency of the part. Such cases are constantly recurring in the practice of every physician.

I remember vividly the first case of Bell's paralysis of the facial nerve that ever came under my professional care. The patient was a young man who was studying for the ministry, and the facial condition was such as to cause great alarm and doubt as to the possible ability of the patient to carry out his plans for his life work. The paralysis was more than ordinarily severe, and yet by proper massage the tissues were not wasted nor seriously atrophied, and this man now holds a very important charge as pastor of a church in New England.

Another case that I saw afterward had not been treated for five months, and while the patient was a young man with everything favorable to repair he was unable to close his eyes or move the superficial muscles of the face, while the inability to eat with comfort and properly masticate food had led to a general condition of asthenia that was pitiable. This patient was put under massage treatment, but the tissues never recovered their normal action and form.

We have all seen many cases of muscular atrophy resulting from scarlatina, diphtheria and similar diseases. I am confident that with proper care such cases need not be left as a burden to themselves and society, but with proper intervention to prevent wasting and to improve the nutrition and innervation the great majority of cases would make a good recovery.

MASSAGE IN ACUTE INFLAMMATIONS.

In acute inflammations along the spinal tract much may be done to relieve the severity of the congestion by massage, and the assistance that may be given to Nature in establishing neuromuscular activity after a more or less severe disintegration of nerve tracts and centers is undoubtedly very great. In such acute diseases as rheumatism, the pain and congestion are greatly relieved by appropriate massage, and undoubtedly the elimination of waste matters can be greatly facilitated, for it has been demonstrated that not only will the circulation through a given part be greatly assisted, but the functional activity of the glands may be decidedly increased, as has been done in the massage of the kidneys. The sweat glands may be powerfully stimulated, and it is not uncommon to find the skin start a profuse perspiration after a few minutes of appropriate manipulation.

An important value of massage in the care of acute diseases lies in the great relief that the patient experiences from the discomfort that is due to the confinement of the disease. This is especially true of young and middle-aged people who are accustomed to a more or less active life. When disease suddenly stops muscular activity there is a tendency to nervous restlessness and actual pain due to the poor circulation through the muscles and their inability to perform their normal functions. The distaste for confinement in such cases often impels them to keep about when the physician advises a recumbent position and quiescence. By appropriate deep massage all this muscular discomfort is relieved, the circulation through the parts is established, and every condition for repair is improved, until it would almost seem that no element in the nursing of such a patient could be of greater importance than such manipulation.

At present the indication is met in the large majority of cases by superficial skin friction and the application of alcohol; and while this relieves the edema of the skin and subcutaneous areolar tissue, it only superficially accomplishes what is desired, and is to that extent inefficient.

MASSAGE IN HYPEREMIA OF MEMBRANES.

The same thing can be accomplished in diseases that is accomplished in traumatic injuries, although the ocular evidence may not be so well marked. It has always been my practice in treating fractures, dislocations, etc., to relieve edema by appropriate stimulation of the lymph vessels by massage, and I have never yet seen a case that was not greatly relieved from pain, and where the developing turgescence was not checked by this measure. It is fair and rational to assume that the inflammation excited by pain in any part of the body can be checked to a considerable extent by similar processes. If the appropriate massage of the knee joint can effectually promote the absorption of exudate, may it not equally be expected that appropriate manipulation will promote the absorption of an intrapleural effusion? Or, if the effusion is due to a prolonged hyperemia of the pleural membrane, is it not barely possible that appropriate attention given to the circulation of the blood and lymph in the thoracic wall may prevent effusion?

If any person doubts the derivative influence of massage on membranes that are untouched by the process, I ask any such person to experiment on himself the next time he has a severe coryza by vigorous massage of the skin around the base and over the bridge of the nose. The balance between what may be considered normal circulation in a part and hyperemia is so delicate that very slight nerve stimulation, if properly applied, may turn the system in one direction or the other.

MASSAGE IN NEURALGIAS.

In neuralgias the relief by appropriate manipulation is often very marked, and apparently the nutrition of the affected nerve trunk is so influenced that the normal balance is soon secured, and it is found that the pressure along the nerve trunks, to a certain extent, corresponds to a stretching that was long ago found to be an efficient method of treating persistent neuralgias. In sciatica the new method of nerve stretching has been found to be quite as efficient as the surgical method that has been to some extent in vogue. I may say in passing that this new method of stretching consists in flexing the thigh on the trunk as far as convenient, then extending the leg on the thigh so far as can be borne by the patient, and at the same time flexing the foot on the leg as a final part of the movement. This makes the course of the sciatic nerve as long as it can be made in any movement of the body, and where the nerve is extremely sensitive must be done under an anesthetic if carried to its complete extent, which is not always necessary or desirable. I think I am correct in saying that this method is essentially the only one used in the treatment of sciaticas among Scandinavian peoples, and is followed to a considerable extent in France and Germany.

Of course, the diseases mentioned are only illustrations of the general application of this great therapeutic means which has been so long neglected by our profession in this country.

TRAINING NECESSARY FOR THE APPLICATION OF MASSAGE.

It goes without saying that in acute diseases the manipulation should be applied by a person who understands the systemic needs that are to be met. This brings us to a consideration of the training necessary for the application of this method of treatment.

There is a too general feeling among the medical practitioners of the country that massage is allied with the so-called "magnetic" treatment that is practiced by some of the most arrant humbugs to be found in the country; people who profess to be able to "fill the patient with vitality" from their own superabundant stock, and who feign to be greatly exhausted after half an hour's simple manipulation that would require comparatively little expenditure of energy; or they look on the work as being simply skin friction that has no other function than the soothing of nervous excitement, the control of the attention and the setting up of certain nerve reflexes that are allied to the normal nerve activities excited by contacts in normal exercises. Nothing is to be more regretted than this superficial view of the matter. It leads to every trained nurse being expected to be competent to massage a patient, and every athletic trainer and "rubber" being considered a suitable person to act as masseur in cases that are deemed suitable for this therapeutic method. I have noted illustrations of this, to which I wish to call your attention, as they are not unique but customary.

A surgeon of some prominence, in a city of over 100,000 inhabitants, had been advised to try massage in a case of rheumatism, and he sent for a young man of Hibernian extraction, who had carried water and various athletic paraphernalia for college teams, and had finally become a "rubber" for the football team, to take charge of this case, which he did, with results that were satisfactory to the patient and the physician, except that the next time the patient had an attack of rheumatism that happened to be of fairly acute form, he called in the rubber—I can not call him a masseur—and was treated for several weeks before it was deemed necessary to call in a physician to outline other therapeutic means that were of more immediate consequence than the superficial skin friction, accompanied by more or less oily liniment that had been used.

A second case illustrates the need of training for masseurs. A person suffering from constipation and muscular atony was advised to have massage, and a trained nurse was called in to attend to this phase of the treatment, as she was reputed to have considerable skill and a "magnetic" touch. She manipulated the case in a superficial way with considerable nervous satisfaction to the patient, who insisted that she was improving under the treatment; but her constipation received no benefit whatever, and the manipulation was not sufficiently deep to promote the circulation in the muscular tissues, and she finally became so weak and anemic that she gave up the treatment in despair, and was ordered South for a change of climate. There she fortunately fell into the hands of a physician at a sanitarium, where massage was prescribed, with passive exercise and resistive movements, by a physician who knew what ought to be done and had an attendant who was capable of doing it. The gain was immediate, and the lady returned to her home after two months in greatly improved condition, and her health has remained satisfactory.

I am frequently in communication with sanitariums and hospitals that are inquiring for masseurs to take up the work in their institutions, and I never yet have found but one such place where a masseur was treated as anything better than an ordinary ward master, and they are usually paid about the same wages.

In Sweden, which is the home of medical gymnastics, the government supports a school where three departments of physical training are taught. A course of military gymnastics for the training of the officers for their army and navy; a course in educational gymnastics to train teachers for public-school work; and a course in medical gymnastics for the training of experts in kinesitherapy. In addition to the educational and physical requirements for entrance to the school, there is a course of two years during which the pupil is trained in anatomy, including dissection, physiology, kinesiology, pathology, and practical work in both active and passive exercises in all forms that have been found advantageous from a therapeutic standpoint. During two years these pupils have the advantage of daily work in a clinic, where the new men are taught under the supervision of the senior class and the director, who is a trained physician. In the city of Stockholm there are at least five great clinics where patients are treated by this method, either at public or private expense. The work done in these clinics is co-ordinate with the work of the medical clinic. Cases that happen to go to a medical college are referred to the gymnastic clinic if this therapeutic method seems indicated; and, on the other hand, if a case reported to the gymnastic clinic that was obviously a case for medical treatment, it would be referred to the appropriate place. I happened to be in the Royal Central Gymnastic Institute when a sailor appeared for treatment, who evidently had what is so common in this country, but so rare in Sweden that it was not recognized, namely, a case of tertian malaria, with the characteristic chills and rise of temperature. This case was immediately referred to the medical clinic on my diagnosis; and, on the other hand, cases were daily appearing with cards from the medical clinic to the gymnastic clinic. From observation of work in this line in Stockholm I estimated that from 400 to 500 cases a day were thus treated in more or less public institutions.

Where the medical profession has been trained to an appreciation of scientific exercise, and where the masseur has a training in the proper application of exercise, the two work hand in hand with a most gratifying success. For the physician may direct a certain form of exercise that is indicated for the patient, and be sure that in dosage the masseur will be competent to execute his orders with exactness and a trained appreciation of what is to be done. The assistance given to the practitioner is akin to the assistance a trained surgical nurse gives in preparing for an operation and in the subsequent dressing of the wound—an assistance that makes modern surgery as efficient as it is.

May I suggest that in this country our needs lie in two directions?

First, instruction in the medical schools, that is now almost entirely omitted, that should put the students in possession of the theoretical basis of active and passive exercises, from a physiologic and from a therapeutic standpoint. Also, such practical instruction as would make the physician a competent judge of the quality of the work that should be expected of a masseur. A department for this form of instruction is certainly not unreasonable, for in the better class of medical schools courses in pharmacy are given in order to acquaint the student more thoroughly with the appearance and physical qualities of drugs in the various combinations in which they are ordinarily prescribed.

The second need is in the line of more thorough training of people who wish to practice kinesitherapy. May I suggest that the work done in training for this line of activity should cover at least two, and better three years, the theoretical instruction being parallel with the instruction of the first two years in the best medical schools, except that the emphasis should be laid on physiology and anatomy, with the time now devoted to chemistry turned toward theoretical and practical demonstrations and practice of the technic of medical gymnastics. I believe they should have some training in materia medica in order that they may understand the physiologic effects of the commonly used drugs; they should also be made familiar with hydrotherapy and other forms of mechanical treatment. The person who completes such a course should be given a degree or professional title, like "Medical Gymnast," and be legally registered for practice, in order that the people at large may know that the practitioner has received a stated form of training for his work and passed definite examinations to establish his ability to practice. This would give the medical practitioner a trained assistant, whose ability might not always be of the highest grade, because even the title of "M.D." conferred by our largest institutions does not always guarantee a competent practitioner; yet on the whole it will raise the standard of work and give an assurance to the people that the person employed is qualified for the work for which he is paid; and the incompetent will be weeded out by the laws of the survival of the fittest as they enter into competition with each other. With the status of the masseur thus determined, the fakirs who now parade under other names but "wear the livery of Heaven to serve the devil in" would be forced into some other line of activity.

In many of our larger cities it is possible to find men and women of rare ability who have been thoroughly trained for the work that they do and whose relations to the medical practitioner are most loyal and satisfactory. I happen to know of such people whose character and attainments are of the very highest order, and whose professional earnestness and honor may well be a model for any of us.

I am not arguing for massage as a panacea, or as the only therapeutic means of value. I simply claim for it such a rational basis for its practice as is furnished by the most thorough knowledge of physiology, and a knowledge of the psychoneural control of many of the pathologic and physiologic processes of our bodies. By this neglect we have put in the hands of illegitimate practitioners an instrument that they have wielded to the advantage of many patients and to the much greater advantage of their own pocket books.

The chemical elements and their combinations are not the only means of awakening or subduing physiologic action. In fact their influence has undoubtedly been overestimated by the practitioners of the past; and while we may take well-deserved credit to ourselves for the beneficent results obtained through drug medication during the hundreds of years in which it has occupied the chief attention of the profession, we must also bear the onus of the extensive drug addiction that is to-day one of the great curses of the human family.

DISCUSSION.

Dr. J. W. Foss, Phoenix, Ariz., said that his experience confirms the statements made by Dr. Seaver. The suggestions made by Dr. Seaver, if adopted and carried out, would assist the practitioner to obtain greater success in the treatment of disease. By the aid of massage results are achieved which can not be obtained by other means.

Dr. R. C. Newton, Montclair, N. J., considers that Dr. Seaver's paper opens up a large subject, much of which is little understood. Rubbing a patient vigorously during a bath is an essential part of the Brandt treatment of typhoid fever. If the patient is simply put in the bath and left there, the bath might do more harm than good. Owing to its beneficent effect on the circulation, rubbing might be made a part of the treatment in many other fevers besides typhoid. In old, helpless patients much good can be done by rubbing them thoroughly as well as by giving them baths. In cases of so-called sluggish fever with vascular congestion, and in neurasthenia and weak heart, this treatment should be carried out as a matter of routine. There is perhaps no more important phase of therapeutics to-day than massage; and there is no question that the average practitioner needs much enlightenment on its uses, limitations and dangers.

Dr. Heinrich Stern, New York City, in replying to a question, stated that the physiologic effects of massage are of quite a complex nature. They are for the greater part purely mechanical, but also thermal and electro-osmotic. Its total action is exerted on the circulation and the fluids of the deeper-seated tissues, modifying the processes of metabolism. Massage enhances the permeability of various organs, at least re-establishes normal semipermeability in those tissues which have lost their natural characteristics during certain inflammatory processes. By massage the exudate of the serous and synovial membranes, the consequence of acute articular rheumatism, is removed, the membranes resume their normal functions which to the greater extent are only those depending on their normal semipermeability. Every measure tending to re-establish the normal osmotic equilibrium must be considered an osmotherapeutic.

Dr. Jay W. Seaver stated that, owing to lack of time, he had to omit some matter in reading which would have covered the points suggested by Dr. Stern. It has been shown that there is a derivative action produced by these osmotic changes which have been set up. Massage of the kidney causes an increased flow of urine from it, as proved by physiologic experiment. This and other facts show that when we as practitioners neglect valuable means of treatment we leave a fertile field open for cultivation by irregular practitioners who are not slow to occupy it.

REPORT ON THE PROGRESS IN ACTINOTHERAPY DURING THE PAST YEAR.*

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My report will be comparatively brief, since the past year has not been marked by any very important changes or improvements in the actinotherapeutic method. The workers in the field are still few, and for obvious reasons. The apparatus required for its effective employment is, it must be confessed, large and expensive. It is essentially one for institution use; for the cost of installation, the room required, the length of time of treatment, and the restricted classes of patients for which it is useful, do not commend it to the general practitioner.

Nevertheless, in the cases for which it is suited it is pre-eminently useful; and this has been generally recognized in Europe, where all the larger cities now have special institutions for the Finsen light treatment. St. Petersburg, for instance, has no less than three,[1] and through the bounty of the queen a very perfectly equipped one has recently been opened in London. We are certainly behindhand in America. The light treatment is used by a few individuals, and some private institutions are equipped with facilities for its employment; but nothing has been done on a large and efficient scale for the sufferers for whom this method affords the best, and sometimes the only means of relief. I know of no institutions comparable to those on the continent, not to speak of the very large and excellent hospital at Copenhagen.

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Von Petersen: Dermatologisches Centralblatt, March, 1903.

INDICATIONS FOR THE USE OF ACTINOTHERAPY.

The indications for the employment of actinotherapy have become more precise, though its field has been but little enlarged. The tubercular affections of the skin in all their varieties, lupus vulgaris, tuberculosis verrucosa, scrofuloderma, tubercular ulceration, postmortem tubercle, etc., together with some possibly tubercular affections such as lupus erythematosus, are the diseases in which it is pre-eminently useful. It would lead us entirely too far to review all the reports that have appeared on this subject during the year. A publication of Finsen's, however,[2] must convince the most skeptical of its efficacy. It consists of about twenty-five reproductions of "before and after" photographs of cases, showing results in most virulent, extensive and long-standing cases that can only be characterized as wonderful. The most terrible deformities are definitely replaced by smooth and innocuous scars; and milder cases show hardly any traces of their past disease at all. It is worthy of note here, though of course no one would for an instant doubt the entire reliability of the reproductions, that the patients pictured do not, as has been the case with some of the cures published here, wear exactly the same clothes and trinkets, and have exactly the same arrangement of the hair, etc., in the two photographs taken six months or a year or more apart.

CURES REPORTED.

Series of cures have also been reported by Gunni Busck,[3] Morris and Doré,[4] Kaiser,[5] von Petersen.[6] Huber,[6] François,[6] Leredde and Pautrier,[7] Chatin and Carle,[8] Montgomery,[9] Schmidt,[10] Dryer,[11] Jansen,[12] de Beumann and Degrais,[13] Rogers,[14] and many others. My own testimony can only be confirmatory of these results. Tuberculosis of the skin in all forms can be cured by this method.

Millioz[15] claims to have cured tuberculosis of the joints by actinotherapy. Leredde[16] has employed it with great success in obstinate acne. A few experimenters have used it in tuberculoses of the internal organs, rodent ulcer, epithelioma and cancer, alopecia areata, nevus, etc. We are still not in a position to make any positive statements of its efficacy in these complaints.

In this connection, a word concerning the frequency of lupus and other dermal tuberculoses in this country will not be out of place. The impression prevails that they are of extremely rare occurrence. I very greatly doubt its correctness. We see a number of cases in New York, and by no means exclusively in the foreign-born population. It was believed to be extremely rare in Denmark until Finsen began his work. Yet of the 1,200 or more cases that he treated almost all were natives of that small kingdom. The difficulty is that almost all the cases occur in the very poor, and can not be subjected to a long and expensive office treatment. I have seen perhaps 30 cases in the last two or three years; only ten or twelve of them could undertake treatment, and in some even of these it could not be kept up for the requisite length of time.

THE CHEMICAL RAYS.

In the early efforts at elaboration of the actinotherapeutic methods the pre-eminently chemical rays in the violet and ultraviolet end of the spectrum were regarded as the chief or indeed the only ones that it was desirable to employ. It was evident, of course, that the thermic rays of the red end had to be eliminated as much as possible; the patient's sensibilities soon settled that. The ordinary visual rays of the yellow region and its neighborhood were also looked on as useless; and hence obstacles to their passage, violet or purple glass screens or water-baths with similarly colored media were extensively employed. The method was even called the blue light treatment; some still use that term for it, and others believe that any blue or violet light or spark, no matter from what source of energy, will be efficacious. That position has been virtually abandoned during the past year. The best operators use all the rays of concentrated light, excluding only the red thermic rays so far as may be possible. It is true that the violet and ultraviolet rays are most active, both chemically and bactericidally; but those of the central spectral region are also effective, and there is great loss of power from their absence.

VARIOUS FORMS OF APPARATUS IN USE.

As regards the various forms of apparatus that can be employed, a word of warning is urgently needed. It is a common mistake to take superficial surface reaction as a measure of the efficiency of a machine, and some of the manufacturers do not hesitate to exploit this argument for their advantage. It was attempted with me in the cases of the German dermo-lamp and some of its native imitations. As a matter of fact it would rather be proper to say that surface reaction is in inverse proportion to surface effect. A lamp that causes reddening of the skin after an application of a few seconds, is one in which all the chemotactic effects of the rays are spent on the superficial epidermic layers. Finsen, Bie, and others have taken occasion in a number of communications to emphasize these facts, and to protest against the employment of entirely insufficient and inefficient light sources. There are lamps on the market, both here and abroad, that are entirely useless from a dermatotherapeutic point of view, not to speak of action on the deeper tissues. Some of these are composed of collections of ordinary incandescent lamps run on the ordinary light wiring. They are a delusion and a snare so far as the Finsen method is concerned; for, no matter what their candle-power, or in what numbers they may be combined, their amperage is too low, and they give thermic and visual, but not chemical and bactericidal effects. This can be readily proved by testing with ordinary sensitized paper; chemical action is slow, weak and inefficient, and the very slightest obstacle interferes with it altogether.

Similar if not quite so severe strictures must be made

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2. Die Bekampfung des Lupus Vulgaris, Fischer, Jena, 1903.
3. Dermatologisches Centralblatt, July, 1903.
4. Therapeutic Gazette, Aug. 15, 1903.
5. Wiener klin. Rundschau, vol. xvii, p. 17.
6. Dermatologisches Centralblatt, March, 1903.
7. Monograph. C. Naud, Paris, 1903.
8. Monograph, Masson & Cie, Paris, 1903.
9. Jour. of Cut. Dis., December, 1903.
10. The Journal A. M. A., Feb. 27, 1904.
11. Dermatologisches Centralblatt, February, 1904.
12. Monat. für praktische Dermat., July 15, 1903.
13. Annales de Dermatologie et de Syphiligraphie, May, 1903.
14. Amer. Jour. of Dermat. and Genito-Urinary Diseases, No. 6, 1903.
15. Diet. and Hyg. Gazette, July, 1903.
16. Monat. für praktische Dermat., Oct. 1, 1903.

on the smaller and cheaper arc lamps which are run on currents of from 5 to 10 amperes. There is not power enough in them to get deep effects. Arcs running on a 40-ampere current are as weak as can be used. I employ a 50-ampere arc; the regulation Finsen arcs need 60; and the originator of the method used a 100-ampere arc for his work.

With an efficient arc as the source of light, the surface reaction is usually very slight. There is a slight transitory erythema after each treatment, and a deep though not permanent pigmentation finally appears at the margin of the area that is subjected to it. But penetration occurs, and we can hope to affect not only the subcutaneous but also the deeper tissues. This point was settled by the experiments that I made some two years ago, and an account of which was published in the *Medical Record* at that time. Concentrated arc light, that had passed through the entire thickness of the human chest and abdomen, was successfully employed to make a print from a negative on a sensitive plate. The light had to pass through two layers of skin and subcutaneous tissue, fat, muscle, bone, and the red blood, before it could reach the plate; yet a distinctly marked chemical effect was obtained, and successful diapositives were made.

I have elsewhere described the apparatus that I employ, the actinolite, which is the only apparatus manufactured here that has sufficient power to be effective. A very important practical improvement has been made in it during the past year. The water bath required to cut off the heat rays is no longer a separate receptacle. The two condensing lenses are arranged to form the sides of the bath, the water being between them. Several important advantages are thus obtained. There is one piece less of accessory apparatus, and less weight. Then the entire optical part of the apparatus, the lens-waterbath, can be lifted out for changing the water and cleaning the lenses; it is all perfectly and readily accessible. Finally, and most important, all danger of cracking the lenses from their sudden heating up is entirely obviated by their being in contact with the water. It is decidedly discouraging to break lenses worth from $50 to $100 in one's work; and it is tedious to have to take ten minutes in running up the rheostat when one begins to work. I now go up to full power in 10 seconds or so without the slightest danger of damage. I have now used this modified lens-bath daily for five months, and am well satisfied with it.

The new iron carbons for the lamps that were proposed by Bang and others last year have not proved so effective as was hoped. Bogrow[17] claims that they burn irregularly, and are difficult to keep adjusted. I have found similar difficulties with the iron-manganese carbons that are on the market here; the white smoky vapor that they produce is objectionable. The idea underlying their employment, of course, is to obtain a more powerful blue-violet spectrum from the incandescence of these metals. As stated above, however, the tendency now is to employ almost the entire range of the spectrum; and there is no special reason for using a form of carbon otherwise disadvantageous for the purpose of obtaining a few more violet rays. I propose in the future to employ the ordinary arc carbons.

LIGHT PENETRATION OF THE SKIN.

Finally, there remains to be mentioned the efforts that have been made to favor light penetration of the skin by methods other than the inconvenient and often inapplicable compressors. Dreyr[18] found that the addition of a little erythrosin to nutrient media rendered the bacteria and infusoria in them sensitive to the yellow and green rays, just as it does the photographic plate. Thus, a layer of skin 1.25 mm. thick protected a non-sensitized prodigiosus culture, so that they lived under the light for 11 hours; when the medium was sensitized they were killed in 20 minutes by the same light. In lupus he got a much quicker and greater effect when he used a 1 to 1,000 sterile erythrosin-Grübler solution in physiologic (0.8 per cent.) salt solution. From 0.5 to 1 cubic centimeter was injected after Schleich's method to sensitize an area of from 4 to 6 square centimeters. Four to six hours later, the actinotherapy was applied; vigorous reaction was obtained in 15 minutes in well-vascularized tissue. I have had no personal experience with the procedure. It would probably be impracticable to give the injection several hours before each treatment in any but hospital cases; but if the erythrosin could be applied in some absorptive medium by the patient himself, it might be used.

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THE DIVIDING LINE BETWEEN THE NEUROSES AND THE PSYCHOSES.*

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The temptation to mark out new lines in the field of psychiatry is one that assails all who write on this many-sided subject, and every writer yields to it, the difference being mainly in the completeness of the surrender.

One must classify indeed to write at all, and classification is an alluring and agreeable exercise. Yet I shall indulge in it only to a very limited extent, even though there are few barriers as yet erected in the neuronic territory to keep us from wandering at will. Classifications have, furthermore, contributed much to neurologic and psychologic gaiety, which, in itself, is perhaps a good thing. With all possible respect, one may liken the classifications to a flock of geese, each one of which, however, is to its particular proprietor, a beautiful swan.

Beside the enjoyment to be gotten out of classifications, there is a more substantial good. Doubtless each new effort contains a germ of truth or a new ray of light or a suggestion of interest, and we need discussion and clarification of ideas, admitting that there is as yet no finality, and will not be until we can say more exactly what the brain conditions are which produce mental changes. The disposition, therefore, is natural to shuffle the pack and deal the cards anew, and play the hand as well as one can. The faces of the cards are ever the same, yet the permutations and combinations are infinite in variety. This game, however, is unlike games of chance. The honors are never "easy" and do not come by accident.

Recently, in a meeting of the Section of Psychology of the British Medical Association, Dr. Charles Mercier[1] presented a paper on the classification of insanities embodying his ingenious and familiar ideas as to forms and varieties. Dr. W. Lloyd Andriezen discussed the paper, or rather spoke after it had been read, but without referring to any of the points adduced, utilized the occasion to bring forward his own classification and explain its advantages.

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[17] Monat. für praktische Dermat., Aug. 15, 1903.

[18] Monats. für praktische Dermat., Feb. 1, 1904.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] British Medical Journal, Oct. 3, 1903, p. 830.

More recently, in the Boston Society of Psychiatry and Neurology, Dr. Charles L. Dana[2] read a paper entitled "The Partial Passing of Neurasthenia," in which he proposed a reclassification of the insanities with inclusion among them of a large section of the hitherto so-called neurasthenias. Dr. Dana's lines of classification, like those of Andriezen, were drawn on an evolutionary basis, which, no doubt, is generally regarded as the safest and most practical foundation for present research. Dr. Dana states that there has been a "renaissance" in psychiatry, and that the good effect has been felt by the neurologist leading to a "more careful study of mental states," which has emphasized the fact that while insanity is "a morbid state, there is a large number of such states that are not insanities, though showing a kinship to them." He would, however, include the so-called neurasthenias which have mental weakness or disorder as their essential characteristic among the mental diseases.

Dr. Dana's proposal emphasizes the fact that insanity has never been satisfactorily defined. He thinks that one-half of the cases now called neurasthenia, including all the hysterias, would thus disappear from among the neuroses and reappear among the psychoses, but makes it clear that if there be a dividing line between neuroses and psychoses, insanity exists on both sides of this line, so far as the views now generally prevailing are concerned. It is also true that in adding certain cases of neurasthenia to the insanities he is adopting a view that has long been entertained by alienists.

Speaking only of recent American writers, I may allude to a very able discussion on "The Borderline Between Sanity and Insanity," in 1898, by our lately deceased confrère, Dr. E. C. Runge,[3] before the American Medico-Psychological Association, in which he uses the following language: "When we admit that a case of so-called cerebral neurasthenia may at times simulate the profound psychic changes of the prodromal phase of dementia paralytica so closely as to render an error of diagnosis not only possible but excusable, we put neurasthenia at once in its proper place. Every neurasthenic is, to a variable degree, a psychoasthenic. The question is one of degree only, the varying intensity of the disease can not possibly affect its fundamental character." Runge also shows that the only difference between delirium and postfebrile insanity is often simply one of duration. The conclusion which he formulated seems to me irresistible, namely, that "insanity is the symptom of any pathologic process implicating the psychic centers of the brain, hence the borderline between sanity and insanity lies at the point where brain disease parts ways with brain health; by brain being meant its psychic centers."

In this connection I may be pardoned an allusion to a discussion of this point by myself before this Section two years ago.[4] In writing on "Hospitals for the Neuropathic and Psychopathic," I said: "Either the two classes belong together to a great extent or their separate needs have been largely ignored." I then showed how a large proportion of the "neurotic" are really insane, and are found among the inmates of public asylums, while "nervous prostration" is often a polite misnomer for insanity, the only distinction between a large number of patients in any private sanitarium and those in public hospitals for insane being that the former are blessed with longer purses. The phobias, the obsessions, hysterias, hypochondrias, the confirmed drug and drink victims are certainly cases of mental as distinguished from nervous disease. No definition could be framed which would include insanity and exclude these cases. It is also true that the hemiplegias, the apoplexies, the toxemias and even the heart, kidney and arterial diseases, accompanied by disordered brain function, have insanity as a complication. Nevertheless, these cases are not generally regarded as insanities, either by the profession or the public, though technically they are such, for they are "a seriously [and persistently] impaired condition of the mental functions involving the intellect, emotions or will or one or more of these faculties, exclusive of temporary states produced by and accompanying acute intoxications or acute febrile diseases.[5]

And here the fact is strongly brought out that the word "insanity" means everything or nothing, according to the use made of it by different persons. Insanity is very generally accepted as a generic term for all abnormal mental action produced by disease or defect or disorder of brain. In another sense it is applied only to offensive or dangerous mental states, which causes a natural and nearly universal feeling that we do not wish it applied to ourselves or our friends, however appropriate it may be for others. It has, in a lesser degree, the suggestion about it of the older word "lunacy," which in its day was equivalent to possession by the devil. Hence, it is abhorrent to call neurasthenia and hysteria *et id genus omne*—"insanity." This confusion will, in my opinion, ultimately result in the abandonment of the word. Its meaning in law, in medicine, in common parlance and in psychology is variable and confused to the last degree. No complete nor generally acceptable definition of it has been or can be formulated. It is, we often remind ourselves, only a symptom of brain disease still more or less obscure in its nature, and yet we must, in a practical way, consider and treat it as a disease in and of itself. Psychosis is a preferable term. It is less objectionable and more indefinite, and I submit that an indefinite word is better calculated to define an indefinite thing. The meaning of insanity can not be properly limited to offensive or dangerous cases. The neurasthenias are, all will admit, psychoses, but the insanities are psychoses in precisely the same sense and it seems inaccurate to call one psychosis insane and another sane simply to please the ear unless there be some radical difference in fundamental nature. If "major" and "minor" are acceptable, no alienist would object, even though the word "psychosis," like "hysteria," may be mildly objected to. There are many patients who do not care to be told they have hysteria, either "major" or "minor,' and of course nothing will overcome the objection felt by wounded pride to acknowledging infirmity in the highest faculties. If, however, psychosis be accepted, a gain in clearness will have been won and the unnecessarily painful associations of "lunacy" and "insanity" will be avoided. Furthermore, along with the passing of neurasthenia, there should be a passing of the word insanity and with it an unnecessary opprobrium will also have disappeared.

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[2] Boston Medical and Surgical Journal, March 31, pp. 339, 352.

[3] Transactions of the American Medico-Psychological Assn., 1898, vol. v, p. 114 et seq.

[4] Hospitals for the Neuropathic and Psychopathic, The Journal A. M. A., Sept. 27, 1902.

[5] Century Dictionary (["and persistently"] is added from the "Standard Dictionary").

I may advert here to another utterance showing the obscurity of the word insanity. In an ingenious article in a recent issue of the *Alienist and Neurologist,*[6] Dr. J. W. Wherry proposes that the word insanity shall be applied only to delusional states, but as insanity is fully as much a symptom of emotional and volitional, as of intellectual states, the proposal seems impracticable. Furthermore, all the phobias and obsessions belonging to conditions not generally regarded as insanity would have to be renamed.

The delirium of fever differs from insanity only in duration and not in kind. If it is insanity when continued three months, it is insanity when continued three hours, at least there is nothing to show at what point a dividing line exists, and to give widely different names to stages of the same disease leads only to confusion. We may correctly say a psychosis complicates a fever, whether the complication be of three hours' or of three months' duration. The phobias of the neurasthenic, the obsessions of the hysteric, the illusions of the hypochondriac differ only from the wildest delusions of the maniac in degree; at least, if they differ in kind, we are not yet prepared to demonstrate the fact. The "phobia" of the neurasthenic which transforms *muscæ volitantes* into threatened blindness or creates cancer or heart disease out of nothing is insanity, even though it has been unrecognized by our neurologic brethren.

I can agree, from my own experience, with Dr. Dana's statement that very many cases of so-called climacteric insanity have always been psychopathic and have had attacks of mania or severe neurasthenia in early life from which they have never fully recovered.

One further reflection and I am done. The last idea I wish to advance is that the progress made in classification in nervous and mental diseases of late has largely been in the direction of obliterating lines rather than in drawing new or closer ones.

In the classification of insanity, the views of Kraepelin which meet with general favor have been characterized by throwing together cases formerly classified separately. If there was formerly any agreement as to species of insanity, certainly "mania," "melancholia" and "dementia" were considered stable and well defined, but the line between the two first has been erased by forming one group, embracing largely the acquired insanities and terming them the "manic-depressive insanities" or "mania-melancholias," while dementia has been applied to another great group of the primary insanities with the prefix "precocious" and subdivisions into "hebephrenic," "catatonic" and "paranoid," thus leaving "paranoia," while in the differentiating stage, somewhat suspended in midair. This conception of "dementia precox" modifies greatly the meaning of "dementia" as formerly understood and includes an extensive class of cases formerly not classified as dementia, and, indeed, not possessing the character formerly attributed to dementia by English writers.

Now turning to Dr. Dana's proposal that the neurasthenias shall largely be classified as psycho-neuroses or "phrenasthenia," thus bringing them under the category of mental diseases—or, as one may say, with bated breath, "the insanities"—we see an opinion expressed by the neurologist with which the alienist can heartily concur and in fact a proposition which is not new to the latter. At the same time this means the destruction of lines formerly rather generally agreed on of distinction between insanity and various so-called neuroses (hysteria, neurasthenia, hypochondria, the various phobias and obsessions), and the transfer of a large group from the field of neurology to that of psychiatry.

On the whole, I fear I may be accused, in writing on this subject, of writing on something non-existent, or at least on a most vague and indefinite subject, and this I must admit, only urging in my own defense that we are not yet in a position to secure scientific accuracy and will not be until the changes from health to disease going on in the brain, of which insanity is the symptom, can be localized and qualitatively and quantitatively understood. We may appear at present to be going backward, changing and undoing the work of our predecessors, rather than advancing; nevertheless, true progress frequently requires such a process as new lines of investigation are discovered and new working hypotheses are adopted.

MEDICAL PRACTICE IN SIBERIA.

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REQUIREMENTS FOR MEDICAL PRACTICE.

The rules of medical practice in Siberia are the same as in European Russia; that is, for the whole Russian Empire, from the Baltic Sea and the German-Austrian frontier up to the Pacific Ocean—Vladivostok and Port Arthur—there is one medical law: For the right of practicing medicine one must be graduated from one of the ten imperial universities of Russia. The university can be attended only by those graduated from a classical high school (eight years' studies), the so-called gymnasium, while the time of study in the university is not less than five years. After graduation, each student is permitted to take the state examinations, always oral. If the student be successful in these "final" examinations, he gets his diploma, and the right to practice medicine throughout the Russian empire and to fill any medical position in the army, navy or civil services, etc. For the higher medical positions, as well as for professorships, the physician must take new examinations on certain subjects, prepare a scientific work and defend the same openly. Then he gets the second, highest medical degree, *doctor medicinæ* (doctor of medicine).

Thus the medical practice in Siberia is in the hands of people who have received a complete preliminary general education and a special medical one from a university.

UNIVERSITY EDUCATIONAL DISTRICTS.

The Russian government decreed in 1899 that each university should accept only students belonging to the educational district in which the university is located, so that a graduate from the Siberian gymnasium can attend only the University of Tomsk, but by no means the University of Kazan or Moscow. These universities can be attended only by students from their respective educational districts. A graduate from the gymnasium in Odessa, for instance, can study medicine only in Odessa, but not in Moscow or Petersburg.

The majority of young physicians in Siberia are thus graduates from the University of Tomsk, although there are very many physicians in active practice who were graduated from other universities.

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[6] Alienist and Neurologist, April, 1904, p. 147.

GENERAL PRACTITIONERS AND MEDICAL OFFICIALS.

When a young physician in Russia gets his diploma, he has in view either to practice in some city as a general practitioner or specialist ("voluntary" practitioner), or to get a position as a district or county physician, military physician, etc. All these positions are more or less paid, so that the Russian physician is in very many cases practically independent of private practice, forming the class of so-called "serving" physicians. The latter class is in Russia quite numerous, especially in the small cities of central, north and east Russia, being comparatively less numerous in the larger cities. In Siberia, where the population is sparse, the acting physicians mainly belong to this class. For instance, to take the city where I was practicing (Yenisseysk, with a population of 10,000), there were seven physicians for the whole city. Three were general practitioners, and five held salaried positions as follows: One was a physician in the gold mines of the Yenisseysk district; one was city physician; one physician in the city hospital and for the prisoners; one was district physician, and one in the city dispensary. The same comparative proportion between these two classes of medical men exists in other cities of Siberia. Thus in Krasnoyarsk, the capital of the province of Yenisseysk, with a population of 30,000, there were in my time (1898-1901) twenty-four physicians, and all except one occupied some official medical position.

SALARIES OF MEDICAL OFFICERS.

Regarding the material part of the latter, I will give here the amount of salaries of my colleagues of the city Yenisseysk: The doctor of the gold mines received 2,500-4,000 roubles a year (about $1,250-$2,000), depending on the number of workmen in the mines, counting 1 rouble—50 cents—per capita; the city physician received 1,000 roubles a year; the physician of the city hospital and jail, 1,000 roubles (with a flat, heating and light); the district physician, 1,200 roubles; the dispensary physician (two hours daily), 600 roubles. It is obvious that the salary alone can not always secure a good living, therefore, some physicians also resort to private practice which, however, is entirely in the hands of the "voluntary" physicians.

SUPPLY OF PHYSICIANS IN THE CITIES.

From what was said above, it will be seen that a city of 10,000 population, with eight physicians, is quite sufficiently supplied with medical assistance. Generally speaking, the cities of Siberia, and still more so those in Russia, feel no lack of medical aid, while in some parts of Russia there is even an abundance of physicians.

SUPPLY OF PHYSICIANS IN RURAL DISTRICTS.

The same can not be said regarding the rural population. Siberia mostly consists of villages; there are but few cities. The villages are scattered at great distances from each other, the usual distance being 13 to 15 versts, or about 10 miles. In places remote from the populous districts the villages are 30 to 50 miles apart (so is it, for instance, in the province of Yenisseysk on the rivers of Chuna and Mura). It is evident that a physician can not live from private practice in a village, and the government can not afford to have even one physician for each three villages; therefore, each Siberian province is divided into medical districts.

THE DISTRICT PHYSICIAN.

Before the year 1898 the province Yenisseysk, which contains about 1,000,000 square miles, was divided into six districts. For each district there were two physicians—one for purely medical purposes, the other one for medicolegal ones. Both physicians used to live in the capital of the district. In case of need, as, for instance, an epidemic, the physician was notified by the authorities through a special messenger or mail which visits the villages once a week and the cities twice or three times a week (where the train passes through a village or town the mail may be obtained every day). The physician then started to the corresponding place on his *povoska* (traveling sleigh). On account of the long distances between the villages and the obsolete methods of communication, much time is lost before the necessary point is reached. It is obvious that good and prompt medical services are, under such conditions, entirely impossible.

OFFICIAL VISITATIONS OF THE DISTRICT PHYSICIAN.

The district was officially visited by the physicians once a year, usually during the summer time. Some parts of his district were visited oftener, depending on the distance, but practically the population was all the time without any medical assistance, as in urgent cases it was impossible to get the doctor. During epidemics, when many villages needed the doctor at the same time, he traveled from one village to another, merely recording the fact that such or such an epidemic exists, the number of the sick, and, finally, making a corresponding report to the medical authorities of the province. So it was with me.

PERSONAL EXPERIENCES.

In December, 1897, the medical board of the province of Yenisseysk sent me to one of the remote districts of this province to help out the district physician on account of an epidemic of typhoid fever. The district physician was busy in other parts of his vast district, and, therefore, could not himself visit the place where I was sent. I started immediately from Krasnoyarsk, traveled more than 800 miles, passed through numerous villages, having found but one case of acute tuberculosis, and very many cases of measles. Of course, I could not do anything good for the unhappy children, as I had to visit during one month a large district, and one or two hours on an average was all the time I could spend in each village; otherwise I would be unable to return to my medical duties at the necessary time.

UNHYGIENIC CONDITIONS.

The hygienic conditions of peasant life in Siberia are extremely bad. The whole dwelling often consists of a single large room, which is ventilated in the winter time by opening the door for a few seconds. A flood of cold air thus fills the room, so that the ventilation brings cold simultaneously with fresh air. The more well-to-do peasants have two or three rooms; one is kept always clean for occasional guests or officials. The crowded, dirty conditions of life, together with the absence of good and proper nourishment, are the cause why epidemic diseases prevail among the peasants in Siberian villages with high mortality and frequent complications.

MEDICAL AID.

The physician during his official trips carries a small "drug store," distributing medicines *gratis*, of course, to the patients. It is obvious that a patient with a chronic disease, waiting about a year for the doctor's call, can not be even a little bit improved from taking a few powders or a tincture. The chronic diseases which prevail most are rheumatism, bronchitis, and all kinds of gastro-intestinal and venereal troubles. The existence of such a system of medical services was too absurd, and was recognized as such by every physician in charge of a district practice. When I returned from my trip, I asked my colleague, the district physician for about twelve years, what was the aim of his useless services for so many years. He answered: "The necessity to feed my family." Even if there were some dose of usefulness in this system of medical practice, it could in no way justify the immense expenses of government and the population.

Since 1898 some reforms have been made in the medical practice of Siberia, namely, each of the six districts was divided into smaller portions with one physician in each. The physician was given an assistant and one midwife. The Yenisseysk district, for instance, was divided into three smaller districts with three physicians, and the latter had to live, not in the capital of the district, but in the villages, according to the number of inhabitants. The office of a separate coroner physician was abolished, the medicolegal duties being placed in the hands of the district physician.

THE "FELDSHER" ASSISTANT.

The physician's assistant, the so-called "feldsher," is something like a trained nurse, but with a broader medical education. Each feldsher, according to the present laws of Russia, must have a fair preliminary education, attend three or four years a medical school, which is usually connected with some large hospital, and having passed successfully the examinations gets certain rights to practice medicine, namely, in localities where there are no physicians. The feldshers have, in the majority of cases, a good practical training, can sometimes make correct diagnosis and successfully carry out the corresponding treatment. They are very numerous in Russia, playing an important part in the medical life of the rural population, not only of Siberia, but even of Russia, as they supply the lack of physicians and medical assistance which is felt to such an extent in Siberia.

MEDICAL FACILITIES.

The reforms of medical practice in Siberia have been carried out, but the aim was not reached, as three physicians instead of one for a district larger than the State of Illinois and with obsolete methods of communication, can not be of much avail to the population. The latter does not benefit much, from the fact that the doctor instead of ten days or more has to travel (with horses) only three days, so that the result is an immense increase of the expenses with no practical good results. The physician in such circumstances passes most of his time in his traveling sleigh, has very little rest and no moral satisfaction. Therefore, more or less conscientious physicians, with good intentions, try to abandon such an useless play and to establish themselves in some city or not far from even a very small town. Some of the district or county physicians possess small hospitals with a few beds, but such hospitals are not of much use, as they lack proper accommodations and sufficient size.

THE DISTRICT PHYSICIAN AND MEDICAL SCIENCE.

The physician being entirely alone, far from his colleagues of the town, must work successfully in all branches of medical science, be, so to say, a specialist in all branches of medicine, so that there is absolutely no possibility or chance of becoming in time a useful contributor to the science.

THE ZEMSTVO OR PROVINCIAL COUNCIL.

In European Russia a similar system of medical practice in the villages exists, but in more perfect conditions, thanks to the fact that it is not in the hands of the government, but in those of the *zemstvos*, the provincial councils. The conditions of medical practice there are much better, and the so-called *zemstvo* physicians play in Russia a great rôle, not only in the medical or sanitary life of the country, but also in civilizing the population, as well as in contributing to medical science. Some of the zemstvo doctors have appeared as great physicians, as, for instance, Vladimiroff (the author of the so-called Mikulicz-Vladimiroff operation), Razumovsky (professor of surgery in the University of Kazan), Komarovich, Yakovenko, etc., but in Siberia medicine, one may say, exists as yet in an embryonic state, this largely depending on the ignorance and rarity of the population as well as on the lack of means.

THE HOSPITALS.

I would like to say a few words regarding the condition of Siberian hospitals. These may be divided into private (i. e., founded from private donations) and governmental ones. The latter are in the hands of an obsolete institution, "the department of public health." The private hospitals are conducted most satisfactorily and correspond completely to all needs of science, but such hospitals are very few, almost exclusively in Irkutsk and Tomsk, the two largest cities of Siberia. The governmental hospitals, which exist in every town of Siberia, are in such a horrible condition that I would like better to give here the description of one of them by Dr. Ssalishtcheff, late professor of clinical surgery in the Imperial University of Tomsk,[1] made by him in an article published in 1897.

DESCRIPTION OF A PUBLIC HOSPITAL.

"The surgical clinic," says Ssalishtcheff, "is, together with the hospital clinic for internal diseases, under the supervision of the Department of Public Health. This hospital consists of two one-story buildings—one for males, the other for females. For the male surgical patients there are three rooms in the former, while patients with internal diseases are also occasionally placed in the same rooms. The fourth room serves for surgical operations. In the female department there are no separate rooms for surgical patients, who are there placed together with patients suffering with other diseases—for instance, syphilis, internal diseases, etc. The hospital has no separate rooms for infectious diseases, so that patients with ulcerations, suppurations, erysipelas, gangrene and inoperable cancers and those who are going to be operated on are all accumulated in one large ward 'for the sake of isolation.' This ward opens into a corridor about six and a half feet wide, into which open also the other wards of the surgical department. This hall is 'ventilated' at both ends through the exits into the anterooms, while at the same time mephitic fumes pour in from the most primitive privies.

"Beside this, in this corridor there meet every morning a great many new patients, who gradually abandon this place toward 12 or 1 p. m., leaving their *aroma.* These patients are usually dressed in dirty sheepskin coats and dirty, wet felt boots. It is obvious that the isolation of patients in the large ward can not even be thought of. The best room, the so-called 'paradise,' serves for operations as well as for examination of new patients, but the room is far from corresponding to the rules of hygiene. In this room there are eight patients; each of them has about 25 cubic yards of air and about 7 square yards of floor space, with the ceiling about 10.5 feet high—i. e., one-half the minimum required by hygiene. In the large ward the patients have considerably less cubic feet of air and floor space. The air is in all the rooms reeking with CO_2; according to Timasheff, the average proportion is about 2 per thousand. Such a horrible antihygienic condition of the hospitals is not encountered in the zemstvo (provincial council) hospitals of even the smallest towns of European Russia.

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[1] Arch. für klinische Chirurgie, 1897, liv, No. 1, p. 135, etc.

"On account of lack of beds, the patients often have to lie on the floor. The rooms are poorly lighted through small, frost-covered windows. The wards are cold during the winter time, while the nurses live constantly there with all their household effects. Near the beds of the patients there are placed the most primitive, malodorous night-stools, and everywhere there naturally reigns an unavoidable but yet tremendous dirt. Dr. Timasheff found that about 20,000 to 89,000 bacteria fall on the surface of each square meter, and in the surgical room, during operations, 295 bacteria fall on one square decimeter in the course of five minutes, and 600 bacteria in ten minutes. Despite the fact that it was so hazardous." Ssalishtcheff continues, "to operate among such circumstances, we gradually succeeded in performing the most difficult and complicated operations, and, in the great majority of cases, with the best results.

In the above-described sad conditions are the hospitals in the majority of small Siberian cities, although lately new hospitals have been erected, as, for instance, in Yenissevsk, but with such inadequate equipment and facilities that one can not even think of carrying out any scientific treatment, and still less any scientific researches.

CLINICAL AND HISTOLOGIC OBSERVATIONS ON SYMPATHETIC OPHTHALMIA.*

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At a meeting of this Section five years ago, Gifford, of Omaha, advocated the employment of large doses of salicylate of sodium in the treatment of sympathetic ophthalmia, his experience with the remedy having been such that he said, "I do not hesitate to recommend it as the most important remedy that I know for the disease." His method of employing the drug is to administer from "10 to 13 grains in the course of 16 to 18 hours for each 10 pounds of the patient's weight," preferably in brandy, 15 grains to the teaspoonful, followed by a copious draught of water. If there is any indication of heart disease, it is, of course, necessary to begin with smaller doses. In the general discussion which followed, but one of the members present reported any experience in the use of the drug in this class of cases; and, as the number of cases of sympathetic ophthalmia observed by any ophthalmic surgeon during the course of the disease must be relatively small, I venture to report, in some detail, the histories of two cases treated within the past few years, with the hope that in the discussion, which I trust will follow, will be brought out the experience of the members regarding the best methods of dealing with this much-dreaded affection.

Case 1.—F. S., male, aged 24 years, was first examined June 19, 1902.

History.—Eight years before he had been struck on the left eye, in the ciliary region, by a piece of glass which he thought had penetrated the eyeball. He was at once taken to a hospital, where an operation was performed, but the nature of the operation he does not know. The piece of glass was not found. The inflammatory symptoms continued for many months before the eye became white and quiet, and no vision remained. From this time on, at varied intervals, sometimes occurring as frequently as every two or three months, there appeared attacks of redness in the right eye, together with slight dread of light and inability to use the eye for continued near-work, always preceded by one or two days of redness and tenderness of the left eye. For this condition he had consulted ophthalmic surgeons at different hospitals, always being advised to have the left eye enucleated, and always declining to follow the advice. Four weeks before my examination he was struck by a baseball on the affected eye. At the time of the accident both eyes were perfectly quiet, but on the following day severe inflammatory symptoms appeared in the left, the eye being very red and painful on pressure. Three days before I was consulted, the vision of the right eye began to fail rapidly, and when I saw the patient was equal only to 6/45. It had commenced without any premonition, and there had been no symptoms of redness or irritation of any character in that eye, with the exception of a desire to avoid very bright light.

Examination.—There was found in the right eye a somewhat hazy cornea with numerous punctate spots on the posterior surface, especially in the lower part, a very sluggish moderately contracted pupil, scarcely any reaction to light being detected; more spots, or deposit, on the anterior lens capsule in the pupillary space, and a very hazy vitreous with only a red glare from the fundus There was slight ciliary injection and considerable photophobia, though no point of special tenderness could be detected in the ciliary region. In the left eye there was also moderate ciliary injection, considerable tenderness on pressure, especially over one point in the ciliary region and the tension was markedly diminished. The cornea was normal, and the pupil was entirely closed, the iris being drawn into a corneo-scleral wound below.

Evidently the piece of glass had entered the eye in the neighborhood of the corneal limbus below, involving the cornea and sclera, the iris had prolapsed and had been excised at the hospital, a portion of the prolapse had remained in the wound, a long siege of uveal inflammation had ensued, and this, in turn, followed by repeated attacks of sympathetic irritation for eight years. At the expiration of this time a severe blow had been received on the eyeball, followed immediately by a recurrence of the old uveitis, and three and a half weeks later by a typical attack of sympathetic uveitis in the other eye, the latter having appeared without any previous symptoms of irritation.

Treatment.—The offending eye was at once enucleated, atropin instilled in the right eye, and the patient given mercurial inunctions and potassium iodid to the point of tolerance. In spite of this, vision became rapidly worse. Subconjunctival injections of cyanid of mercury and pilocarpin sweats were now employed, but also without appreciable effect. Vision was now only 1/45 of normal. Salicylate of sodium in 20-grain doses four times a day was now ordered, and as no improvement was noted after four days' use, the dose was increased to 30 grains every three hours, or 150 grains during the twenty-four hours.

Result.—Within a week after beginning this amount the vitreous began to clear and the aqueous to become less turbid. The patient continued this amount daily for three weeks, the vision improving gradually all the time, and after this for four days only in each week. At the expiration of two months from the time of beginning the administration of the salicylate of sodium, the cornea was clear, except a slight stippling in the lower part; a few minute spots of opacity remained on the anterior lens capsule, the pupil was somewhat more sluggish than normal, the vitreous was slightly hazy, the margin of the optic nerve was decidedly veiled, and vision equaled 6/9. For some weeks afterward the patient continued to take 150 grains of the drug one day in each week, and there had not been any relapse in a year and a half. Since this time the patient has not been seen.

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*Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

CASE 2.—W. B., a boy aged 8 years, on July 3, 1903, exploded a dynamite cartridge which he had found around some quarries, several pieces of the shell striking him in the face and eyes. He was at once seen by a physician, who ordered some cleansing lotion. On July 6, three days later, he was brought to the Jefferson Medical College Hospital.

Examination.—An examination showed numerous cuts and burns on both sides of face and eyelids, a few pieces of shell being buried beneath the skin surface. In the right eye the ocular conjunctiva was somewhat chemotic, the anterior chamber entirely filled with blood and 3 mm. down and in from the corneal limbus, directly through the ciliary body, was a circular opening 2 mm. in diameter, through which a small prolapse of the ciliary body and choroid protruded. Tension was —2, and vision equaled the counting of fingers at 3 feet. In the left eye, 4 mm. down and out from the corneal limbus, directly through the ciliary body, was a circular opening 1 mm. in diameter. The cornea and aqueous were clear, the vitreous was very slightly hazy, down and in, but the fundus was normal in all respects. Atropin was instilled, and a later examination through the dilated pupil revealed two small pieces of brass, which could be seen not only with the ophthalmoscope, but by means of oblique illumination. One of the pieces was located just behind the lens, near the lower margin, and to the left of a vertical axis; the other, somewhat deeper in the vitreous, to the right of and somewhat below the optic axis. Both pieces were small, gave the bright reflex of brass, and were slightly mobile in the vitreous immediately surrounding them, the latter being the only portion of the vitreous that presented any haziness. The tension was —1, and vision equaled 15/LXXX. The prolapsed portion of iris and choroid in the right eye was excised, the wound cauterized, atropin instilled, the constant application of cold compresses employed, and mercury administered internally.

A skiagraphic examination of the right eye was now made, and showed one large and possibly two very small doubtful shadows. We were, therefore, confronted with a most difficult problem. Both eyes contained foreign bodies, both had useful vision, and the right had suffered from a prolapse of the uvea, which had been excised. Should we, therefore, enucleate the right eye (by far the worse) in an effort to prevent sympathetic trouble in the left, or should we permit it to remain and watch for symptoms, inasmuch as the left eye also contained two foreign bodies? Dr. Howard F. Hansell, in whose service at the hospital the patient was seen, very kindly examined the patient with me, and agreed that the latter was the better plan to be pursued.

On July 27, three weeks from the time of admission to the hospital, the patient was discharged with instructions to return to the dispensary every other day for examination. At this time the right eye was still slightly red, but not painful. The anterior chamber was free from blood, but no view of the fundus could be obtained. Tension was normal. In the left, which was perfectly white and quiet, a slight cloudiness of the vitreous was noted in the immediate neighborhood of the foreign bodies (less than at the time of admission), but otherwise the vitreous was clear and the fundus normal, vision equaling 15/XX. On August 3, a week later, the patient was brought to the dispensary for the first time since being discharged. Examination showed a distinct optic neuritis in the left eye, with very minute deposits on the posterior corneal layer and on the anterior lens capsule. The vision was not so good as it was a week before, there was some dread of light, the eyeball was slightly congested, and the right eye also appeared more red and tender than when he had left the hospital.

Treatment.—It was believed that we were in the beginning of an attack of sympathetic ophthalmia, so the patient was again admitted to the house, the right eye enucleated, and the administration of mercurial inunctions and iodid of potassium begun at once. The eye had been under the influence of a mydriatic, and hot fomentations had been employed since leaving the hospital. On the following day the nerve was much swollen, the vitreous seemed to be filled with powder-like opacities, and there were many more spots on the cornea and lens capsule. On the latter the spots were arranged in a circle just within the border of the moderately dilated pupil. Vision was now 15/C, and in a few days more equaled only the counting of fingers at a few feet. No details of the fundus could be determined. As the eye had been growing rapidly worse under the use of mercury and the iodid, the patient was now ordered 80 grains of salicylate of sodium in the twenty-four hours, which was increased to 100 grains in a few days. Except for some dyspnea, this dose produced no disturbance, and in ten days' time the vitreous became sufficiently clear to permit a vessel to be seen here and there. This dose of salicylate was continued daily for about three weeks, the vision gradually improving as the vitreous cleared and the spots on the cornea and lens disappeared, at the end of which he was discharged from the hospital with a perfectly quiet eye and visual acuity of 15/L. The two pieces of brass could now be distinctly seen, and occupied relatively the same positions that they did at the time of the first examination. The salicylate was discontinued, but on the fourth day after leaving the hospital, the patient returned with a congested tender eyeball, a more hazy vitreous and vision again reduced. Within a week after resuming the use of the salicylate, the congestion disappeared, and the vitreous assumed the condition it had at the time of the patient's discharge; still somewhat hazy, but with vision equaling 15/L, and a subsidence of the neuritis. Between this time and January 12, a period of about four months, the administration of the drug was discontinued six times, and on each occasion the eye became worse, and immediately regained its former condition on resuming the use of the remedy. Toward the end of this period, the length of time the eye remained free from trouble when the salicylate was not being employed gradually increased, the last being of three weeks' duration. During one of the interims when salicylate was not being employed, pilocarpin sweats were tried, but without any appreciable effect. The remedy was now given in full doses on four days of each week for six weeks, and then one day of each week for a month, when it was discontinued.

Result.—Since this time there has been no recurrence. The vitreous is still somewhat hazy and there are some deposits on the cornea and lens capsule, but the neuritis has entirely subsided and the patient has a quiet eye with useful vision of 6/12. Whether further attacks will recur subsequently, or whether the pieces of brass will in course of time produce some intraocular reaction, it is impossible to say.[1]

Macroscopic Examination of Both Eyes.—When the eye of Case 1 was opened, a piece of glass was found which had broken loose partially from an extensive mass of exudate in the ciliary region, the latter extending forward to the original point of entrance. I regret that no inoculations of culture media were made from the end of the optic nerve at the time of enucleation, but, unfortunately, no facilities were at hand for doing so.

On opening the eye of Case 2, three pieces of brass were located; a very small piece in the cornea, another minute particle in the tissues surrounding the optic nerve which had probably been carried there at the time of bisecting the globe, and a third and large piece in the choroid just posterior to the equator of the eyeball. This last piece had entered through the ciliary body, and had ploughed a furrow from the point of entrance to its resting place, through which the sclera was distinctly visible.

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[1] Six months after presenting this paper there had been no further recurrence and the visual acuity was maintained.

Microscopic Findings in Both Eyes.—Microscopically, each eye showed a dense infiltration with leucocytes of iris, ciliary body and choroid, all of these membranes being greatly thickened. The pupil in Case 2 was closed with exudate, between which and the iris it was almost impossible to differentiate. The retinæ were slightly infiltrated, very edematous and thickened, much more marked in the posterior portion of the eye. All the penetrating vessels and nerves showed marked increase in leucocytes and connective tissue cells. The vitreous was also filled with leucocytes. The optic nerve of Case 2 showed a slight degree of papillitis, and the central vessel, as far back as sections were obtained, also showed evidence of inflammation by the increase of leucocytes. Some leucocytes were also noted in the intervaginal space.

Cross-sections of the optic nerve of Case 2 showed a most peculiar condition. Scattered throughout the sections were areas of degenerated fibers, most marked in the immediate neighborhood of the trabeculæ, but occasionally involving a complete bundle of fibers, and more rarely two or three adjoining bundles. In none of the sections was the degeneration found in the center of a bundle alone. It always seemed to begin at the trabecula and pass inward toward the center. In some of the sections the degenerative areas were most marked in the immediate neighborhood of the central vessels, and from these similar areas spread outward in different directions. These sections were examined by Dr. William G. Spiller, professor of neuropathology in the University of Pennsylvania, who believed that the condition was due to the passage of toxins along the trabeculæ of the nerve, as is seen in nervous tissue elsewhere in the body.

As soon as the optic nerve of Case 2 was severed and the eyeball rotated forward, inoculations of culture media were made from the severed end and sent to the laboratory of the Jefferson Medical College for a report. In forty-eight hours a culture developed, which was composed of cocci, and which, morphologically, tinctorially and biologically, corresponded to the *Staphylococcus pyogenes aureus*. This same micro-organism has been found inside of some of the blood vessels adjoining the optic nerve.

REMARKS.

In these two cases there is a wide difference in the time of appearance of the disease in the sympathizing eye. In the first case the inflammation did not become manifest until eight years after the injury, the piece of glass remaining in the eye during this period. It seems quite plausible, however, that the blow on the eye, which was received three and a half weeks before the onset of the affection, disturbed the position of the piece of glass, that had remained quiescent for so long probably because it had been encysted, and brought about a recurrence of the old uveitis, which was followed by the sympathetic attack in the other eye. In the second case, the inflammation appeared at the end of the fourth week. It may be urged by some that the piece of brass in the affected eye may have had something to do with the subsequent symptoms as they presented themselves, but, beyond a slight localized inflammation of the vitreous immediately surrounding the foreign bodies, I do not believe that this was true. It is not likely that foreign bodies in the vitreous would give rise to the chain of symptoms above described, exactly simulating those of sympathetic ophthalmia, continuing the course of the latter disease and finally terminating in recovery. Besides, it is a well-known fact that pieces of brass may lie dormant in the vitreous indefinitely, and that when they do set up inflammatory reaction the symptoms are not like those of sympathetic uveitis.

The onset of the disease in both cases without any premonitory symptoms agrees with the experience of others on this point. In the first case there had been repeated attacks of irritation for several years, but when the typical sympathetic inflammation manifested itself, it did so suddenly, with no other symptoms observable to the patient than rapidly failing vision. This would indicate, as pointed out by Gifford, that the vision should be carefully ascertained each day, as its failure would seem to be among the first noticeable signs of the advent of the disease.

The value of the administration of large doses of salicylate of sodium demands especial mention, and corroborates the experience of Gifford and others who have given the remedy a trial. In both cases, mercurial inunctions, the iodids, subconjunctival injections and pilocarpin sweats not only failed to ameliorate, but even to check the progress of the affection. In the first case, the symptoms promptly abated after the administration of the remedy was commenced, and in the second case the symptoms were not only abated, but rapidly returned on each occasion that the use of the drug was discontinued during a period of several months. My experience fully concurs with that of Gifford, that the drug must be administered in large doses to be of value, and, should I have under my care a patient whose stomach would not tolerate such doses, I would attempt, as he has suggested, its administration by rectum, or perhaps by inunction. Should there be any heart or nephritic disease, smaller doses must be given at first and the effect carefully noted, but it is my belief that these small doses will not be found sufficient to control the sympathetic affection. The addition of a teaspoonful of brandy, as suggested by Gifford, or of a few drops of the tincture of nux vomica, or aromatic spirits of ammonia, to each dose has appeared of value, not only in increasing the tolerance of the stomach to the drug, but in relieving, to some extent, the more or less depressant effect on the heart.

As to the theory of the production of the affection, these cases, unfortunately, like so many others, do not throw much light on the subject. Both cases would seem to indicate that the disease is an infectious process arising in the primarily affected eye, and by some means of exit leaving that eye to obtain a resting place and a good breeding ground in the other. As to the manner of exit, the first case gives no information; but it seems to me that in the second case the condition of the optic nerve and the central vessels would indicate that at least some of the infectious material passed outward in this way.

THE GENESIS OF SYMPATHETIC OPHTHALMITIS.*

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Thirty years ago, it is safe to say, there was but one view held as to the genesis of sympathetic ophthalmitis. The doctrine of Mackenzie that the optic nerve played the chief rôle in the transference of the inflammation from the exciting to the sympathizing eye, had been universally abandoned, and the view that the pathologic changes in the secondarily affected eye were the product of an *influence—an influence* of a reflex character—transmitted to it through the ciliary nerves, was as universally accepted. This view, which had been suggested by Mackenzie as an alternative but improbable explanation of the phenomena of sympathetic inflammation, and had been advanced previously by Tavignol, in 1845, was first brought prominently forward by Heinrich Müller, who published his conclusions —based on pathologico-anatomic observations—in 1858. His theory gained converts rapidly, and among those who accepted it, and who soon became its ardent advocates, were von Graefe, Donders, Arlt and Bowman. To them it seemed all sufficient, and through their labors it was fortified and strengthened. Numerous pathologic observations by Donders and many other competent observers, based on careful dissections of eyes enucleated because of sympathetic irritation or inflammation of the fellow-eye, and innumerable clinical facts were brought forward to sustain it, and, before long, it seemed if there was one question in ophthalmology settled beyond peradventure, that question was the genesis of sympathetic ophthalmitis. But time works many changes, and now, after the lapse of thirty years, it may be truthfully said, if there is one question in ophthalmology, seemingly, farthest from determination, and as to which least definite views are held, that question is the genesis of sympathetic ophthalmitis.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

When pathology declared that an irritation transmitted through sensory nerves, or even through nerves containing sympathetic as well as sensory fibers, could not produce inflammation—could, at most, but cause vasomotor paralysis—and when it further told us that an inflammation such as occurs in a sympathetically affected eye must, almost of necessity, be the product, direct or indirect, of bacterial action, "something," to use a slang phrase, "had to give way," and that something, so far, at all events, as those were concerned who felt it incumbent on them to accept without question Pathology's dicta, was the doctrine of Heinrich Müller, of von Graefe, Donders and Bowman that sympathetic ophthalmitis was a neuropathic affection, and that the influence which brought it about was transmitted through the ciliary nerves.

And now it became the duty of the ophthalmologists who were pathologists as well, to construct a new theory of the origin of sympathetic ophthalmitis, which should take the place of the one that had been dethroned so unceremoniously. The first to undertake this task was Dr. Adolf Alt,[1] who, in a paper "On the Anatomical Causes and the Nature of Sympathetic Ophthalmia," argued in favor of the older view—the doctrine of Mackenzie—that the optic nerve furnishes the chief route by which the inflammation proceeds from the exciting to the sympathizing eye. His paper, which showed painstaking and laborious research, gave an account of the pathologic changes found in 112 eyes enucleated because of sympathetic disease of the fellow-eye; and his conclusion, in favor of the optic-nerve theory, was based mainly on the large percentage of pathologic changes in the retina and optic nerve, and the small percentage of changes in the ciliary nerves, which these eyes exhibited. His views attracted wide attention and gained many adherents. When, however, it was pointed out[2] that the "changes" in the retina and optic nerve, to which he attached so much significance, consisted in a large measure of detachment of the former and atrophy of the latter[3]—retinitis and neuritis being conspicuous by the infrequency of their mention—and, further, that in the whole series of 112 eyes there was but one instance (this single exception being a doubtful one, and probably due simply to the scantiness of the information supplied regarding it) in which it was not manifest that the uveal tract, as well as the optic nerve and retina, was the seat of pathologic changes, the inconclusive character of the evidence which he had brought forward, and its irrelevancy so far as the question of the etiology of sympathetic inflammation was concerned, became apparent; and, before long, his views received less consideration and his data were less frequently cited.

The next doctrine advanced, and the one still commonly in vogue, was that sympathetic ophthalmitis was a septic affection, and that it was caused by a hypothetical micro-organism, which traveled from the exciting to the sympathizing eye along the lymph spaces of the optic nerve. Leber and Snellen, in 1881, were among the first to advocate this view, a variant of which was suggested by Berlin, who thought it more probable that the infection of the second eye occurred through the general circulation, and, to account for the absence of pathologic manifestations in other organs, assumed for the hypothetical micro-organism a hypothetical affinity for the ocular tissues.

Schmidt-Rimpler later, in 1892, proposed a modification of Berlin's theory—which has the merit, it seems to me, of being less radically hypothetical—that the micro-organism, after reaching the second eye by way of the general circulation, attacked its tissues, rather than those of other organs, because they had been rendered less resistant in consequence of the congestion produced in them by the vasomotor reflex from the exciting eye, a view which had previously (1887) been advanced by Gifford.[4] The latest modification—for the rather fascinating cytotoxin idea of Brown Pusey[5] can not be classed under this head—of the germ theory, also first suggested by Gifford, but more formally put forth by Bellarminoff and Selenkowsky, is that it is the toxins produced by the bacteria in the exciting eye that pass over to the fellow-eye and cause the mischief with which we are all so familiar.

The experiments of Deutschmann, in which he endeavored to produce sympathetic ophthalmitis in rabbits by introducing into the eye a pyogenic micro-organism, attracted wide attention and, for a time, were regarded as affording strong evidence in favor of the germ theory of the disease; but, as is well known, Gifford, Randolph and others who repeated his experiments failed absolutely to confirm his results. Apart from this lack of confirmation, however, the result which he claimed to have obtained—an infection of the second eye as part of a general systemic infection, of which the rabbits soon died—was so wholly unlike true sympathetic ophthalmitis as we know it in man, that even had his experiments been confirmed at the hands of other investigators they really would have thrown little or no light on the etiology of the disease.

It is hardly necessary to point out that, although nearly a quarter of a century has elapsed since the germ theory of sympathetic ophthalmitis was first propounded, no positive evidence has been adduced to sustain it, and that to-day it must still be regarded as a mere hypothesis, resting on a far from substantial basis. As Gifford, one of its ablest supporters, has well expressed it[6]: "The most ardent advocates of the germ theory of the disease admit, on their part, that the nature of the germ which causes the disease, and the path which it takes in reaching the second eye, are as yet unknown. . . ." Not only is this true, but it is also true that only in rare instances have micro-organisms of any kind been found in eyes enucleated because of sympathetic disease of the fellow-eye.

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[1] Archives of Ophthalmology and Otology, December, 1876.

[2] "Some Recent Theories Regarding the Pathogeny of Sympathetic Ophthalmia, Viewed from a Macroscopic Standpoint." S. Theobald, Archives of Ophthal., vol. xiii, No. 1.

[3] H. Müller had already expressed the view that an atrophied optic nerve "could hardly have the power of transmitting an irritation or any other process from the eye." Indeed, one of the arguments which he adduced in favor of his theory was that the ciliary nerves are less liable than the optic nerve to undergo atrophy.

[4] Trans. International Med. Congress, 1887, vol. iii, p. 769.

[5] Archives of Ophthal., vol. xxxii, No. 4, 1903.

But, beside this lack of positive evidence in favor of the view that sympathetic ophthalmitis is caused by a specific micro-organism, there are many clinical and pathologic facts which seem to weigh strongly against this doctrine. Among them may be mentioned the beginning of sympathetic inflammation so much oftener in the anterior than in the posterior structures of the eye; the extremely variable period of incubation of the disease; notwithstanding Alt's data to the contrary, its much more frequent occurrence as a result of injuries and disease of the iris and ciliary body than of affections of the retina and optic nerve; its development in consequence of non-penetrating wounds of the eye—burns of the cornea, for example[7]—and of loss of the eye from herpes zoster ophthalmicus (Noyes),[8] from non-traumatic iridocyclitis, etc.; and the well-established fact that enucleation of the exciting eye not very infrequently stops the progress of the disease in the sympathizing eye, a result which it would be difficult to explain if the mischief in this eye were really due to a micro-organism that had reached it, either by way of the lymph spaces of the optic nerves or through the general circulation.[9]

On the other hand, when we turn from the germ theory of sympathetic ophthalmitis to the discredited ciliary nerve theory—the theory which was so satisfying to those astute observers and logical reasoners who deserve to be, and always will be, looked back to as the founders of modern scientific ophthalmology—we no longer find discordance, but the completest harmony, it seems to me, between theory and observed facts. The absence of bacteria in the exciting eye; the variable period of incubation; the significance of disease and injuries involving the iris and ciliary body—those structures so richly supplied with sensory nerves, and inflammation of which almost always means intense suffering—the site at which the inflammation commonly begins in the sympathizing eye; the occurrence of sympathetic disease in consequence of non-penetrating injuries of the cornea, which, however, have given rise to painful and protracted keratitis; the arrest or favorable modification of the disease from enucleation of the primarily affected eye; its occasional development after enucleation of the exciting eye;[10] the long-continued existence of sympathetic irritation in some cases without the development of actual inflammation, and in others the occurrence of inflammation with but little precedent irritation—all these phenomena become explicable, are, indeed, but what the theory would lead us to expect.

It has been contended that if the ciliary nerve theory were true, sympathetic irritation should always lead to the development of sympathetic inflammation. Doubtless, if the opportunity were afforded, this is what, in the great majority of cases, would, sooner or later, happen; but as an argument against the theory this contention is as absurd as to insist that blepharitis marginalis can not be caused by strain of accommodation, because it is not present in every case of ametropia. As stated in my paper to which reference has already been made:

> That in some instances inflammatory changes occur in the second eye without sympathetic irritation, and that in others sympathetic irritation of the most marked character exists for a long time without inflammation, does not militate against the view that both of these conditions are dependent on a reflex influence transmitted through the ciliary nerves, as some would have us believe. In the first place, the ciliary nerves contain sympathetic as well as sensory fibers, and it is probable that the former have most to do with trophic changes, the latter with disturbances of sensation. In the second place, in view of the astonishing difference in the degree of pain inflicted in different persons by the same amount of violence done to the nerves, we are justified in assuming that in the eye, as well as in other parts of the body, these two kinds of fibers do not always exist in the same relative proportion, or, at least, that, in different individuals, sometimes the influence of one set, and sometimes the influence of the other, may predominate. Admitting this much, we shall have no difficulty in comprehending why a given lesion of the ciliary body, for example, should give rise, in one instance, to pronounced sympathetic irritation unaccompanied by structural changes; and, in another, to trophic changes in the sympathizing eye with little or no accompanying irritation.

The fact that, in some instances, sympathetic inflammation begins at the posterior pole of the eye, as a neuroretinitis or choroidoretinitis, has been regarded as being distinctly favorable to the theory that the disease is transmitted by way of the optic nerve or its lymph spaces; but, as I pointed out in my previous paper, this is only what the ciliary nerve doctrine would lead us to anticipate, since it is here, about the optic nerve, that the short ciliary nerves enter the eyeball, and the neighboring choroid coat—between the blood vessels of which and those of the papilla there is intimate anastomosis—is especially rich in its ciliary nerve supply.

Even the most uncompromising opponents of the doctrine that sympathetic *inflammation* is caused by a reflex irritation transmitted through the ciliary nerves, admit that the photophobia, lachrymation, incapacity for work, and, most significant of all, the vascular congestion, the vasomotor paralysis, which are the characteristic features of sympathetic *irritation*, are produced in this way; and the pathologists, who certainly can not claim that they have ever been able to reproduce experimentally a condition even approximately identical with that which exists when an eye sympathizes with its injured fellow, allow, on their part, that when the reflex congestion caused by irritation of sensory nerves lasts for a considerable time, as it does in a sympathetically affected eye, it places the cells of the part in a condition of instability, lowers the vitality of the capillary walls, and offers facilities for the emigration of leucocytes, so that on slight provocation inflammation may be precipitated. In a word, they admit that, solely through the influence of the ciliary nerves, we may have in the sympathizing eye a condition which is just short of actual inflammation.

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[6] Posey and Wright's Diseases of the Eye, Nose, Throat and Ear, p. 391.

[7] I have met with one such case, where a severe and protracted keratitis was produced by the accidental instillation into the eye of aqua ammoniæ, and other cases have been observed.

[8] Trans. Am. Ophthal. Soc., 1873, p. 71.

[9] It must be admitted that this difficulty would not be so great as to either the bacterial toxin or the cytotoxin theory.

[10] As to this phenomenon, I remarked in the paper already referred to: "It is quite unnecessary to adopt the progressive optic neuritis hypothesis in order to account for the origin of sympathetic inflammation . . . . after enucleation of the exciting eye; for it is altogether probable that the disturbances in nutrition in the second eye are preceded by and are dependent on molecular alterations (perhaps a slight myelitis as suggested by Brecht) in the vasomotor or 'trophic' centers, and that these again are secondary to alterations of similar character in the gasserian and ophthalmic ganglia; so that we need only suppose that in exceptional instances these changes have progressed so far as not to be arrested by the enucleation of the eye, to obtain an entirely satisfactory explanation of the etiology of these anomalous cases."

At last, however, it would seem, the pathologists are willing to concede even more than this; to concede, in fact—if I rightly interpret the conclusions reached by Head and Campbell as a result of their carefully conducted investigations concerning the pathology of herpes zoster[11]—all that the advocates of the ciliary nerve theory of sympathetic ophthalmitis ever have claimed—that, without the intervention of bacteria or their products, inflammation may be set up in a distant part in consequence of an irritation of sensory nerves in relation with this part.

Among other conclusions drawn from their study of herpes zoster by Head and Campbell—and it should be remarked that their results have been widely accepted, and by pathologists of the highest distinction—are the following:

The eruption of herpes zoster is produced not "by disturbance of special trophic nerves, but by intense irritation of cells in the ganglion which normally subserve the function of pain. . . ."

There is no evidence that bacteria take part either in the ganglion lesion, which they describe as "an acute interstitial inflammation accompanied by necrosis of the ganglion cells," or in the secondary skin lesion, the contents of the vesicles whenever examined having been found sterile, or in the consequent inflammation of the lymphatic glands. "Thus," they comment as to the last-mentioned observation, "we are brought face to face with the curious fact that a collection of intensely inflamed vesicles containing a sterile fluid can be associated with enlargement of the lymphatic glands. Moreover, these glands have all the appearance of being inflamed. and yet show no sign of bacterial invasion."

Do not these concessions which, as yet, I believe, have not been controverted, dispose of the only serious objection which has ever been urged against the ciliary nerve theory of sympathetic ophthalmitis? If an "intense irritation" of ganglion cells "which normally subserve the function of pain" can produce, without bacterial or traumatic intervention, inflammatory changes in the skin areas supplied by the sensory nerves emanating from these cells, is there any reason why the "intense irritation" proceeding from an injured or diseased eye to its fellow may not, in like manner, produce inflammatory changes in it? Or, to put it more definitely, are we not warranted, reversing the sequence of events as described by Head and Campbell, in assuming that intense and long-continued irritation of sensory nerves, such as we have in a seriously injured and chronically inflamed eye. may cause inflammation in the ganglion cells with which these nerves are in relation. and that this. in turn, may bring about the inflammatory changes in the sympathizing eye? And this, as a glance at my previous paper will show,[2] is precisely the doctrine which I advocated twenty years ago, and which has always seemed to me more satisfying than any other that has yet been advanced in explanation of the genesis of sympathetic ophthalmitis.

I may add, in conclusion, that I have long held that sympathetic inflammation of the eye and herpes zoster ophthalmicus are related affections.[2] Indeed, in my lectures in the Johns Hopkins Medical School (and I have expressed the same views in published writings[12]), it has been my habit to lay stress on a group of diseases of the cornea and of the iris, which, for lack of a better name, I have spoken of as "trophic nerve" inflammations. In this group I have placed, besides sympathetic ophthalmitis and herpes zoster ophthalmicus, the keratitis which follows malarial fever, certain intractable forms of monocular keratitis and irido-keratitis, usually attended by anesthesia of the cornea, and of monocular plastic irido-choroiditis and, with less assurance, serious iritis or uveitis, which also, as is well known, is almost always limited to one eye.

These several "trophic nerve" affections which, it will be observed, are invariably unilateral, I have looked on as due to a common cause—disease of one or more of the ganglia in relation with the fifth nerve, oftenest, probably, of the ophthalmic ganglion, less often of the gasserian ganglion or of the central ganglia themselves. As the investigations of Head and Campbell seem to lend support to this teaching—which I realized was not in accord with the prevalent views regarding the genesis of inflammation—as well as to the ciliary nerve theory of sympathetic ophthalmitis for which I have so long contended, they have afforded me no little satisfaction.

OPERATIVE PROCEDURE ON THE EXCITING AND THE SYMPATHIZING EYE IN CASES OF SYMPATHETIC OPHTHALMIA.*

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The object of this paper is to mention certain classes of conditions which are met with in eyes that produce, and in those that are affected by, sympathetic ophthalmia, as represented by the cases narrated, and to discuss briefly the treatment which seems to me to be indicated, trusting that the subject may meet with a full expression of opinion by the members of the Section.

1. Cases in which the exciting eye still preserves vision, the sympathizing eye being in the early stage of sympathetic ophthalmia. The following is a report of a case in point:

CASE 1.—E. B., aged 43, was admitted to the New York Eye and Ear Infirmary, Jan. 23, 1904. About Nov. 13, 1903, a piece of brick flew into his left eye. Three days later he went to a hospital in Brooklyn and was operated on. He says "there was pus in the eye and an ulcer which perforated." After being in the hospital five weeks he was discharged cured.

Examination.—Left eye, V = fingers at 4 feet. Conjunctiva injected; large macula in lower half of cornea, almost completely covering the pupillary area; remaining portion of cornea quite clear; iris adherent to cornea by a number of filiform shreds at lower portion; pupil not responsive to the stimulus of light, anterior chamber fairly deep; no ciliary tenderness; tension normal. Right eye, V = 20/30 +; conjunctiva injected; cornea clear; pupil dilates fairly regularly under atropin; anterior chamber clear and deep; no ciliary tenderness; three or four filiform posterior synechiæ.

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[11] Brain, vol. xxiii, Part 3, 1900, pp. 353-395.

[12] See article on "Iritis," contributed by me to the Reference Handbook of the Medical Sciences, first edition, vol. iv, p. 219, and second edition, vol. v, p. 218.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Diagnosis.—Sympathetic ophthalmia.

Treatment—Mixed treatment and salicylates internally; inunctions every second day; atropin. On account of the early stage of the sympathetic ophthalmia and the fairly good condition of the exciting eye, I thought it best not to remove that eye, as it might possibly eventually be the better of the two. Thinking that perhaps the anterior synechiæ existing in the exciting eye were instrumental in causing the sympathetic inflammation, I thought that an operation for the relief of the traction on the iris might favorably influence the inflammation of the sympathizing eye. I therefore performed iridectomy, using a keratome for making the incision and dividing the greater number of the anterior synechiæ with the point of the keratome. A large iridectomy was performed without accident. The eye healed kindly and quickly without inflammatory reaction, but the operative procedure had no appreciable effect on the course of the ophthalmia in the sympathizing eye, which was a relatively mild one, but which affected the entire vascular coat of the eye.

Result.—March 15, a little more than seven weeks after the beginning of treatment, the sympathizing eye is rapidly improving. The exciting eye shows but little evidence of inflammation and V = fingers at 5 feet. However, the coloboma following the iridectomy is partly filled in by plastic lymph.

I feel that the course pursued in the treatment of this case was perfectly justifiable, but, because of the tendency to closure of the coloboma with plastic exudation, which proceeded in this case without appreciable inflammatory reaction, I can not say that much was gained by the iridectomy. It is my opinion that the sympathetic inflammation would not have been more favorably influenced had the exciting eye been enucleated, and that all that we might reasonably expect has been accomplished in the treatment of the sympathizing eye. The condition of the latter will undoubtedly continue to improve.

2. Cases in which the sympathizing eye has become quiet, with almost complete posterior synechia, pupil occluded, vision perception of light, projection good, tension normal or slightly below normal, the exciting eye not a factor. To this class belong the following cases:

Case 2.—James C., aged 12, came under my observation in May, 1892. Three years previously he received an injury in the left eye, producing a wound through the ciliary region. Six months later sympathetic ophthalmia of the plastic variety occurred in the fellow eye. During treatment for the condition the exciting eye was enucleated.

Examination.—When the patient came under my observation the sympathizing eye was quiet, the pupil was blocked by a pseudomembrane, there was extensive posterior synechiæ, iris changed in color, slightly opaque and presenting some radial folds. Atropin had no effect on the pupil, except at one small point, where slight dilatation occurred. Tension was very little below normal. Vision equaled perception of light. Projection good. Since the eye was apparently quiet, I was of the opinion that a greater degree of vision might be obtained by performing iridectomy.

Treatment.—The patient was admitted to the New York Eye and Ear Infirmary and a broad iridectomy performed under general anesthesia. It was found that the pigment layer of the iris remained adherent to the capsule of the lens from the pupillary margin, two millimeters toward the equator of the lens; the lens appeared to be transparent. The wound closed readily, but within six weeks the coloboma was filled in with a pseudomembrane, its formation being accompanied by slight injection of the ciliary zone of the ocular conjunctiva, resulting vision being no better than before the operation. A second attempt to obtain a coloboma was made some months later without success.

Case 3.—Frank H., aged 42, thirty years ago was struck in the right eye with a ball, which evidently ruptured the globe, the injury occurring in the ciliary zone. At the present time the globe is shrunken, painless and sightless. Six months after the injury to the right eye, sympathetic ophthalmia affected the fellow eye. The sympathizing eye has been free from inflammation for many years.

Examination.—Globe of normal size; cornea clear; pupil occluded; complete posterior synechia; iris atrophic; anterior chamber about one-half normal depth; —T. ½; vision perception of light in all parts of the field; projection uncertain. The patient was admitted to the New York Eye and Ear Infirmary Oct. 6, 1902.

Treatment.—Thinking that it might be possible eventually to obtain a clear pupillary opening, I made a broad iridectomy upward and succeeded in removing the anterior layers of the iris only. The pigment layer remained adherent to the underlying tissues. The wound was then permitted to heal. Slight ciliary irritation followed the operation.

October 30, eye quiet; —T. ½; defect in iris somewhat narrowed by the deposition of plastic lymph. Jan. 3, 1903, patient was again admitted to the infirmary; tension of globe slightly below normal; eye free from inflammation. An attempt was now made to clear the pupillary area and the area of the coloboma of the opaque mass which occluded it. An incision through the cornea was made with a keratome and by means of a sharp cystotome, De Wecker's iris scissors and forceps, the pseudomembrane was removed and what remained of the lens (which was found to be shrunken and opaque) was expressed and removed by irrigation. A thin cyclitic membrane which stretched across the posterior surface of the lens capsule was recognized, but was not removed, as it was thought best to deal with it later.

Result.—The wound closed, but the healing process was accompanied by ciliary injection and some ciliary tenderness. The coloboma gradually filled with plastic exudate and the scar became slightly indrawn. Tension remained below normal and the vision did not become greater than perception of light He was discharged Jan. 24, 1903. At that time I did not think that there was any prospect of improvement in vision by subsequent operation. Although I have not seen the patient since his discharge from the infirmary, I have recently learned that his vision is the same.

3. Cases in which cataract has formed in the sympathizing eye as a result of sympathetic inflammation: posterior synechiæ; eye quiet; projection good; the exciting eye not a factor. A case in point is the following:

Case 4.—Charles S., aged 29, was admitted to the New York Eye and Ear Infirmary, Jan. 27, 1903. At the age of 12 he was injured in the left eye by the explosion of a firecracker. The eye became very much inflamed and the vision was reduced to perception of light. Five years later sympathetic ophthalmia of the right eye developed. Vision became reduced to perception of light. Six years after loss of vision in the sympathizing eye, an iridectomy was performed on this eye by Dr. Howe of Buffalo, in the hope of improving the vision, but without success.

Examination.—Right eye, conjunctiva normal. Cornea clear in its upper two-thirds. Slight opacity at both margins of the cornea just below the horizontal meridian, measuring 2 mm. in width and 2½ mm. in length—ribbon-shaped keratitis in the early stage of development. —T. The anterior chamber is about two-thirds the normal depth The iris is atrophic and adherent to the capsule of the lens throughout about two-thirds of its extent. Two or three radiating slits in the iris in addition to a small coloboma upward and outward. The pupillary area is occupied by a thickened mass of pseudomembrane. The lens presents a yellowish-white appearance and is of normal size. Perception of light good in all parts of the field of vision. Left eye, the conditions are similar to those in the right eye, except that they are a little more pronounced. Vision equals perception of light, but the projection is faulty, particularly in the lower nasal portion of the field.

Treatment.—As the eye had been quiet for some years and the projection was good, I told the patient that there was a possibility of improving his vision by removing the lens, which was done on the afternoon of January 27. An incision was made with a Graefe knife at the limbus, making a small conjunctival flap. With a small, sharp cystotome, the capsule of the lens close to the margin of the iris below was cut through and the iris liberated in its upper half. A broad iridectomy was then made, after which capsule forceps were introduced and a large portion of the anterior capsule, including the pseudomembrane, drawn out. The lens, which was rather hard and presented calcareous deposits in its cortical layers, was then removed. It was somewhat adherent to the remaining capsule and its expulsion was difficult. However, it came away fairly satisfactorily, and irrigation of the anterior chamber with normal salt solution sufficed to remove almost every particle of lens substance without loss of vitreous.

Result.—Progress was favorable and without untoward symptoms until the third day after the operation, when a small hyphema was present, the blood being bright red in color, apparently coming from the iris. Four days after the operation the patient was able to count fingers at one or two feet.

February 26, V. = fingers at four feet, eye quiet. The coloboma is not so large as it was immediately after the operation. Aside from a slight opacification of the posterior capsule of the lens, there is no evidence of the formation of a cicatricial pupillary membrane. A faint reflex from the fundus can be obtained, but the vitreous humor does not appear to be perfectly transparent. —T. ½.

Six weeks after the first operation the posterior capsule was divided vertically by means of a narrow Graefe knife and a large, clear opening obtained, which has remained.

Feb. 27, 1904, more than one year after the operation, vision with a correction lens equals 20/40; tension a very little below normal. Patient reads ordinary type with facility.

An interesting feature in this case is the formation of "ribbon-shaped" keratitis, which develops only in eyes that are degenerating. Since the operations were performed, the keratitis has ceased to develop in the seeing eye, and the whole aspect of the eye has changed for the better.

4. Cases in which, with occluded pupil, total posterior synechia exists in the sympathizing eye. The tension is plus and increasing (secondary glaucoma); projection still good; the inflammatory process in a subacute stage, the exciting eye not now a factor. The problem is how to retain vision in such an eye.

CASE 5.—David J., aged 15, came to my office April 10, 1903. Eleven weeks before he had had an operation for the removal of cataract from the left eye, which was followed by iridocyclitis.

Examination.—When seen the left eyeball was soft and tender on pressure; the iris was caught in the angles of the wound, and the cicatrix corresponding with the incision for the removal of the lens was indrawn. V = perception of light. Right eye, incipient cataract, transient increase of tension. May 30: very slight iritis; early stage of sympathetic ophthalmia.

Treatment.—Removal of the exciting eye advised and strongly urged. The patient disappeared, but returned June 29 and consented to have the exciting eye removed, which was done at once. The sympathetic ophthalmia, which was then well advanced, was favorably influenced by removal of the exciting eye.

September 1, two months after the exciting eye was removed, the condition of the sympathizing eye was as follows: Complete posterior synechia; tension plus and increasing; ocular conjunctiva slightly injected; anterior chamber shallow; pupil blocked by pseudomembrane; V = perception of light; projection fairly good; field perhaps a little narrowed.

Here was an eye in the last stage of sympathetic ophthalmia, with secondary glaucoma, about to become blind by increase in pressure. The anterior segment of the globe had apparently suffered most from the sympathetic ophthalmia. The question to decide was whether we should endeavor to save the vision by operative procedure for the purpose of relieving the tension. If operation was decided on, what operation should be performed?

A broad iridectomy was done and the lens removed.

Result.—The inflammatory process affecting the eye was not accelerated, but did not abate. The coloboma was slowly filled with plastic exudation and, by subsequent contraction of the exudation, was abolished. The scar became slightly sunken. Tension minus. Vision equaled perception of light. Eye slightly painful.

May 28, 1904, globe atrophic; no perception of light.

In view of what has preceded, it must be admitted that the tendency to plastic exudation in the exciting and in the sympathizing eye in sympathetic ophthalmia is very great, even after the actual inflammatory stage has passed; that it is sufficient to destroy the immediate results of operations on the iris if any degree of inflammation still exists. If increased tension does not exist, operation is not justifiable until all traces of inflammation have passed and even then the result will be uncertain.

If tension is increased and blindness sure to follow if this is not relieved, operation, however small the chances for success, should, in my opinion, be undertaken.

DISCUSSION

ON PAPERS OF DRS. VEASEY, THEOBALD AND WEEKS.

DR. LEARTUS CONNOR, Detroit, said that, while Dr. Theobald states that the ciliary route is the mode of communication from one eye to the other, other observers emphasize the other routes, such as the lymphatics, optic nerve, and blood vessels. Dr. Connor believes that probably all these routes are involved in many, if not all, of these cases. The ciliary theory assumes that it is a local irritation and in every case of sympathetic ophthalmia the ciliary body is involved. In that body there are not only ciliary nerves, blood vessels, and lymphatics, but also muscular tissue. It may be that changes in muscular metabolism will explain why, after ten or twenty years, other obscure phenomena of sympathetic ophthalmia may occur. Unfortunately, the evidence that bacteria are the sole cause is not conclusive. It may be that finer methods of research will throw more light on the subject. Study of toxins teaches that, directly or indirectly, they may produce the trouble. The history of sympathetic ophthalmia illustrates the evolution of great discoveries in medicine.

DR. C. H. WILLIAMS, Boston, stated that, whatever may be the cause of the condition, physicians are most concerned with the treatment. He referred to the case of a woman, about 30, who had severe uveitis in one eye, which later developed in the other, apparently from sympathetic action. It went on so badly in that eye that it had to be enucleated. Last fall she had a return of this uveitis in the first eye, and Dr. Williams tried everything that had been recommended—salicylates up to 1 gr. to the pound of weight, mercurials and all that. She had 4/10 vision when he first saw her, which gradually went down to fingers at fifteen feet. His brother, Dr. Francis Williams, had just returned from Paris with some pure radium bromid and they tried the radiations from that. They used the pure radium bromid, at first three times a week, then twice and then once, held within a quarter of an inch of the eye in one-minute periods with a rest between. The result was that the ciliary congestion lessened and the interstitial keratitis subsided and she now has a vision of 5/10 in that eye. One case does not show very much, but it at least illustrates this point: An eye can be exposed to the radiations of pure radium bromid without doing any harm, provided it is done with care.

DR. G. C. SAVAGE, Nashville, stated that he does not believe in the ciliary irritation theory. He has had two cases occur after the exciting eye had been enucleated. If that theory were true it would be correct to tell patients that when the exciting eye is removed they are in no danger whatever of *sympathetic ophthalmia, for the moment* the eye is removed the danger is past. He does not believe that it is a toxin either, and yet he has not any very good reason for that belief. He believes that the migration theory is the true theory, and he will continue to believe it until some one demonstrates that it is not correct. If it is the correct theory, how long does it take the germs to travel through the lymph channels from one eye to the other? When he first accepted the germ theory he was taught to believe it would take about six weeks. In the last few years he had a case that occurred four weeks after the original lesion, so that if he holds to the germ theory he must believe that some germs can travel this course in from three to four weeks. Now, the exciting eye, if it is useless, should be removed, the sooner the better; *and its removal should never be delayed beyond from four* to six weeks without the patient taking the responsibility, because a delay beyond that time may be attended by migration of the germs and loss of the other eye. If the patient will not consent, let him take the responsibility; there will not be a moment when he will not be in danger. Then, too, he never says to a patient, or to his friends, that when the exciting eye is removed the other eye is absolutely free from danger. Dr. Savage has had two well-marked cases of sympathetic ophthalmia occur after enucleation of the exciting eye. He believes that at any time within from four to six weeks after enucleation of the exciting eye sympathetic trouble in the other eye may occur, the germs having commenced their journey before the enucleation. Later than this he would expect no sympathetic trouble.

Dr. Edward Jackson, Denver, said that the suggestion made in the *Archives of Ophthalmology* a year ago by Brown Pusey should not be passed over without something more than mere mention. The suggestion was based on the experiment of producing degeneration in one kidney by ligation of the vessels and ureter and which is followed by degeneration in the cells of the other kidney, something that does not occur when the first kidney is removed. When the kidney undergoing degeneration is retained in the body the cells develop some substance capable of causing degeneration in kidney cells elsewhere in the body. This seems to Dr. Jackson very suggestive in regard to sympathetic ophthalmia, and he thinks Pusey's suggestion worthy of careful consideration. Both of Dr. Veasey's cases recovered on salicylates, but after enucleation of the exciting eye. The operations in one of Dr. Weeks' cases failed to influence the course of the disease, the exciting eye being retained. The statistics show different prognoses after removal of the exciting eye. Of course, where both eyes are injured the decision as to what should be done is a difficult one. The retention of the eye may have significance from many points of view, but it is a practical point on which there is a good deal of evidence that it is dangerous to retain a damaged eye. In Dr. Weeks' most successful case, where he extracted the lens and got good vision, he speaks of using irrigation with the extraction of the lens. Within the past year Browne and Stevenson of Liverpool have used prolonged irrigation with good results.

Dr. T. Y. Sutphen, Newark, N. J., stated that several years ago he brought to the notice of the American Ophthalmological Society the usefulness, in his experience, of salicylate of soda in secondary glaucoma. Since that time he has found it to be of great value in deep inflammations of the eye, not glaucomatous, whether the tension is increased or not. He is not surprised to find it of value in sympathetic ophthalmia. In support of the theory that the case of sympathetic ophthalmia reported may be due to irritation at the end of the optic nerve, he referred to a case, which he reported several years ago, in which sympathetic neuritis developed in the fellow eye three weeks after enucleation. Strong adhesions had formed between the stump and the under surface of the upper eyelid, which caused a pulling on the end of the nerve at every movement of the other eye. Recovery was prompt after these bands of adhesions were severed. The traumatism necessitating enucleation had been a wound of the upper lid and globe by a piece of blank cartridge.

Dr. J. L. Thompson, Indianapolis, declared that very few men could take the bold stand Dr. Theobald takes in the matter. Dr. Thompson had a case in which the germs must have been twenty-five years traveling around. One case had calcareous degeneration occur and sympathetic ophthalmia was set up twenty-five years after.

Dr. S. C. Ayres, Cincinnati, related a case relative to the subject of Dr. Weeks' paper. A young man, 20 years of age, came to him about eight years after the injury. The injured eye was shrunken and in the other there was a well-developed cataract. Dr. Ayres made an iridectomy and did an extraction. This was followed by exudate, and he did another iridectomy downward and incised the capsule. Then he made a V-shaped incision with De Wecker scissors and got a good open space with very good vision. That is one of the rare cases where sympathetic inflammation is followed by cataract *and good vision obtained by an operation.* In another case a man had an eye injured from a blow. The sympathetic eye and the other one were about equally imperfect. In course of time the sympathetic eye became blind and the injured eye regained good vision. That is an argument in favor of delay in operating. If the injured eye had been enucleated the man would have been entirely blind.

Dr. Robert L. Randolph, Baltimore, stated that during a long working experience in the pathologic laboratory of the Johns Hopkins University he has utilized numbers of the lower animals for the purpose of producing experimentally what is known as sympathetic ophthalmia and he has never seen in the second eye anything which was in the slightest degree suggestive of a sympathetic inflammation. He has frequently been asked by other workers in the laboratory to examine eyes of animals which had been used for other kinds of experiments; these animals showed eye symptoms, but in no case was the trouble anything more than either a conjunctivitis or keratitis, both of which diseases are, as we know, quite common among dogs and rabbits, especially when several are confined in close quarters. He has gradually reached the conclusion that the lower animals, certainly horses, dogs, rabbits and cats, do not have sympathetic ophthalmia, and he believes that all attempts to *produce sympathetic ophthalmia experimentally* will result in failure.

Dr. Clarence A. Veasey, Philadelphia, said that he trusted that the members present did not understand that his prognosis as to the ultimate result in the sympathetic eye of the second case was favorable. It was decidedly unfavorable. On the other hand, he is quite sure that a number of his Philadelphia confrères can recall the case exhibited before the College of Physicians by Dr. Zimmerman some years ago in which a large piece of brass had remained behind the lens fifteen years without producing any inflammatory symptoms. This also agrees with the statements of Leber on this subject. The point he wanted especially to make was that the disease in the second case was true sympathetic ophthalmia and that the condition was relieved by the use of large doses of salicylate of sodium. It has been the custom of Philadelphia oculists to employ the salicylates for many years in diseases of the uveal tracts other than those due to sympathetic trouble. Dr. Veasey got the idea from his friend and former teacher, Dr. de Schweinitz, and thinks that he received it from his former teacher, Dr. Wm. F. Norris, so that it dates back many years. The method is to give 80 gr. during the first twenty-four hours, 60 gr, during the second, and 40 gr. during the third twenty-four hours in most of the diseases of the uveal tract. In sympathetic ophthalmia, however, it is given in much larger doses, according to the body weight. Dr. Jackson says both cases recovered after removal of the exciting eye, but it should be noted that the patients did not recover until after the use of the large doses of salicylates.

Dr. John E. Weeks said that he should not think of saving the eye unless the chances or possibilities were that the vision in the exciting eye might finally be the better of the two. When an eye is attacked with sympathetic ophthalmia, one can not predict that the eye will recover with useful vision. In the cases that he reported, the resulting vision in the sympathizing eye is good to-day. In the cases of cataract following sympathetic ophthalmia, the exciting eye was not removed because he did not think it was in any way a factor at that time. It has not been his experience that removal of the exciting eye always stops the sympathetic process: in some cases it has no effect whatever. In regard to the third case, where cataract was removed, he remarked on a peculiar condition that was present as evidence of degeneration, namely, ribbon-shaped keratitis. The commencement of ribbon-shaped keratitis is an evidence of degeneration of the affected eye. This process ceased in the eye in which the operation was done. A year has elapsed. There has been an improvement in the condition of that eye and apparently a recession of the keratitis.

Dr. Samuel Theobald, Baltimore, stated that he discussed the value of the cytotoxin theory with Dr. Welch of the Johns Hopkins Hospital, and he thought that the knowledge regarding cytotoxins was not definite enough to warrant the establishment of such a theory. In Dr. Veasey's case, where both eyes were badly injured, and he regarded the trouble as sympathetic, it seems to Dr. Theobald not improbable that the supposedly sympathetic inflammation was really due to the injury. The fact that sodium salicylate acted favorably would have no bearing on the question of etiology. As to the disturbing effect of sodium salicylate on the stomach, some of the members, perhaps, have not had occasion to note how very favorably the essence of pepsin acts in this regard when given in connection with the sodium salicylate. For some years he has given from 1 to 2 drams of essence of pepsin with each dose of the sodium salt, and with the happiest effect.

FIFTY CONSECUTIVE CASES OF PNEUMONIA WITHOUT A DEATH.

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In reporting the results of my method of treating pneumonia I wish to thank my many colleagues for the interest they have manifested in criticizing my article that appeared in The Journal, July 9, 1904, and to Drs. W. P. Haney, T. F. Butzow and T. R. McNab, my assistants. I am especially indebted for their untiring efforts to prove or to disprove the value of quinin and iron as I recommended them in pneumonia.

I believe pneumonia to be a septic, febrile disease, characterized, according to our present knowledge, primarily, by a severe lung inflammation and frequently by great cardiac weakness, which often causes death.

The present knowledge of the etiology (excepting exposure to wet, cold and alcohol) and pathology is somewhat limited, and I question the propriety of basing our management on the principles of theory alone. I am inclined to believe that an invasion of a combination of micro-organisms, or their products, are etiologic factors in pneumonia. However, there remains a doubt in my mind if there are not tissue changes elsewhere in the body that precede the active involvement of the lungs.

The fact that I have been able to detect in several cases tenderness and pain, from a mild to a severe degree, in the region of the gall bladder during the first stage of the disease, has strengthened my theory of primary gall bladder invasion. In those cases that are preceded by liver pain and bilious vomiting, troublesome tympanites invariably follow: What relation, if any, these preliminary symptoms have to pneumonia, and the factors that produce these symptoms, are difficult, or impossible, to explain.

I doubt if any disease has occasioned more discussion concerning its etiology and treatment than pneumonia, and, moreover, he who advocates a departure from a measure that is not based on some etiologic or pathologic finding is more formidable in the eyes of the profession than any medical measures he may present.

While differing from nearly every writer on pneumonia, I do not wish it understood that I look on their efforts as unavailing, as no disease presents more individual suggestions from a symptomatic standpoint, or necessitates more active attention. As my exceptions of the present consideration of pneumonia are based on my own experience, I feel at liberty to frankly express these views.

To those who believe my success is due to a modified form of pneumonia, or a malarial infection, I wish to state that I have never experienced more desperate cases in my life, as the report of the following cases, which are fair examples of the pneumonia we have in this section of the Southwest, will confirm. So far as malarial influence is concerned, I have never seen a case of malarial infection during my residence in this locality.

Dr. J. B. Showalter of Butler, Pa., was a frequent visitor to the bedside of Case 1 during the fifth, sixth and seventh days of the patient's illness.

Case 1.—L. M., aged 34; single; Mexican; occupation, mine laborer.

History.—He was taken ill on the evening of Oct. 31, 1904, and was admitted to hospital November 1, at 11 a. m. The alleged cause of disability was exposure, due to change of clothing in a cold room after coming from the overheated mine.

Examination.—Axillary temperature 105.2; pulse, 110; respiration, 36, and somewhat labored; severe pain in left chest extending to left shoulder posteriorly; also pain and tenderness in the region of the gall bladder, with nausea, and vomiting of about six ounces of bilious matter.

Diagnosis.—Pneumonia involving the upper lobe of the left lung. Unusual depression was noticed in this case, which was greatly aggravated by almost constant coughing, and during the frequent paroxysms cyanosis was very much in evidence.

Treatment.—Forty-five grains of quinin were administered at 12 m. and 30 grains more were given at 1 p. m. At 5 p. m. his temperature was 104; pulse, 100; respiration, 32, at which time 20 grains more of quinin were given. Temperature, 7 p. m., 103.8; pulse, 98, full and strong; respiration, 30; 15 minims of the tincture of chlorid of iron was ordered every three hours.

November 2: 7 a. m., temperature, 103.8; pulse, 100; respiration, 30; iron continued. 12 m., temperature, 104; pulse, 100; respiration, 30; pain in left side somewhat relieved; 40 grains of quinin administered. 4 p. m., temperature, 102; pulse, 100; respiration, 36; patient very restless; sputum remaining clear; stomach rebellious and patient vomited about four ounces of bilious matter and milk about 7 p. m. Iron continued.

November 3: 7 a. m., temperature, 103; pulse, 98; sputum slightly streaked with blood. 4 p. m., temperature, 103.6; pulse, 100; respiration, 34.

November 4: 8 a. m., temperature, 103; pulse, 90; respiration, 32; profuse prune juice expectoration. 12 m., temperature, 104; pulse, 100; respiration, 30; entire lung and right lower lobe involved; 45 grains of quinin administered. 8 p. m., temperature, 103; pulse, 100; respiration, 34; iron continued.

November 5: 7 a. m., temperature, 103; pulse, 104; respiration, 40; slightly delirious. 12 m., temperature, 104.6; pulse, 108; respiration, 40; complaining of pain in the region of right lower lobe. 5 p. m., temperature, 103; pulse, 100; respiration, 38, and of good character; complains of but little pain. Twenty-five grains of quinin were administered, which he immediately vomited. Twenty-five more were given 30 minutes later and were retained. Iron increased to 20 minims every 2 hours. 10 p. m., temperature, 101; pulse, 96; respiration, 30; demanding more nourishment.

November 6: 7 a. m., temperature, 100.4; pulse, 90; respiration, 24; 15 minims of iron ordered every 4 hours. 8 p. m., temperature, 101; pulse, 92; respiration, 32; slightly nervous; 30 grains of bromid and 10 of chloral ordered.

November 7: 8 a. m., temperature, 99; pulse, 88; respiration, 22; complains of being hungry and insists on being bolstered up in bed to eat his mush, poached eggs and milk toast. Evening temperature, pulse and respiration practically normal.

November 10: Advice from the patient states that he is practically well.

Case 2.—J. M.; Mexican; aged 38; laborer; occupation, miner.

History.—He was taken ill July 5, and admitted to hospital July 9, after occupying a tent for four days where the rain almost constantly beat on him, and with practically no attention. His condition when admitted to the hospital was as follows:

Examination.—July 9: Axillary temperature, 106.4; pulse, 140, very weak and soft; respiration, 60; very cyanotic and semi-unconscious, and with a most distressing expiratory grunt. Extremities were cold and clammy, and it certainly looked as if he would die in a very few hours.

Treatment.—With difficulty he was aroused and 75 grains of quinin were administered. In one hour later 40 grains more were administered. At 5 p. m., two hours after the first dose of quinin was given, his temperature was 105.2; pulse, 122; respiration, 48; at which time he began to show a rational condition. Twenty minims of tincture of iron were ordered every hour for three doses. At 8 p. m. 40 grains more of quinin were given, with the result that at 8 a. m. the next morning, July 10, his temperature was 102.2; pulse, 110; respiration, 24; practically free from pain; very little expectoration, which was slightly prune juice in color. The patient was discharged from the hospital July 17, practically well.

Case 3.—The following case was treated by one of my assistants, Dr. W. P. Haney.

History.—Mrs. M., aged 24; Mexican; weight, over 200 pounds; mother of two children; was taken ill Oct. 1, 1904. Slight chill about 10 a. m., followed with frontal headache; pain in the eyeballs and in the muscles and bones of the thighs and lumbar region; temperature, 104.6.

Diagnosis.—La grippe. A calomel purge, followed by Dover's poowder and salicylate of soda, was ordered.

October 2: 10 a. m., temperature, 103; pulse, 140; respiration, 26; salicylate of soda and salol ordered. During the day of October 2 she complained of but little pain in her bones and muscles, and at 8 p. m. she was fairly comfortable.

October 3: 11 a. m.. the patient was seized with a chill, followed by severe pain in the region of the right lung, lower lobe, with extreme tenderness in the region of the gall bladder. Dyspnea was marked; temperature, 105.8; pulse, 120. All the physical signs of pneumonia were present, including profuse bloody expectoration. A diagnosis was made of pneumonia, right side, complicating grippe.

Treatment.—Fifty grains of quinin were administered at once, followed in one hour by 30 grains more; 15 minims tincture of iron were ordered at 10 p. m., to be repeated every two hours.

October 4: 8 a. m., temperature, 103; pulse, 102; respiration, 26; 35 grains of quinin were administered at 9 a. m., followed in one hour by 20 grains more; iron continued. At 9 p. m. the third complication was discovered by her aborting, at about the sixth or seventh week. Notwithstanding the serious complications, she was discharged October 7, practically well. I doubt if quinin had as much to do with this patient aborting as the high temperature, as my experience has been that women frequently abort from la grippe when the temperature reaches 105 or over.

Case 4.—J. D., aged 38; Mexican; miner; was taken ill September 30; Dr. Haney first saw him October 2, 4 p. m.

Examination.—Axillary temperature, 105.8; pulse, 128; respiration, 56; profuse prune juice expectoration; pain in both sides of chest, severe in right side.

Diagnosis.—Double pneumonia.

Treatment.—Fifty grains of quinin were given at 4:15 p. m., followed by 30 grains more at 5:15 p. m.; 15 minims of iron were ordered every two hours. The patient was admitted to hospital the following morning, October 3, 10 a. m. Temperature, 102.2; pulse, 102; respiration, 34. Thirty-five grains of quinin were given at 11 a. m.; iron, 15 minims, every three hours.

October 4: Temperature and pulse were practically normal and remained so; he was discharged October 8, well.

A careful review of the above cases will show that in one hour or one hour and fifteen minutes after administering quinin the condition of the patient was improved. While improvement at this early period of the disease is gratifying, it is no comparison to the results achieved by the treatment in preventing the dangerous symptoms of cardiac failure, commonly called crisis. No selection of cases has been made for the purpose of this record, as I hastily took a synopsis of these few cases on the date of my departure for the United States.

Case 2 may be looked on as a lucky one, but it will take a great amount of evidence to convince me that the treatment did not save his life.

I have proved that quinin will not depress the heart in any stage of pneumonia; on the contrary, it is the most reliable stimulant, and produces the effect that we have so often looked for in strychnin and alcohol. Quinin, as I administer it, will not only reduce the frequency of the heart, but will increase its volume and the peripheral circulation as well. Again, to prove its indications, I have but to state that not in a single instance, where large doses have been administered during the active stages of the disease, has cinchonism been observed; in fact, not an unfavorable symptom has been recorded. That iron is a principal factor in maintaining the strength of the heart, as well as in acting as an antiseptic, there can hardly be a doubt.

I maintain that our principal efforts should be directed to applying measures that will fortify the heart and destroy the products of organisms that produce sepsis.

In quite a number of recent cases I have noticed that the rusty sputum has been delayed until the third or fourth day of the disease, and continues only one or two days, probably due to a mixed infection or the treatment.

Just what the blood count will show after the administration of large doses of quinin and iron in pneumonia is speculative on my part, but I venture to say a favorable report will be made.

The fact that many of the older practitioners claim to have given quinin in big doses, not alone in pneumonia but in nearly every inflammatory disease, does not interfere with my unique method of treatment.

that is based on clinical observation and specific conditions for its administration.

To enumerate the diseases that have been treated by large doses of quinin would be as difficult a task as it would be to recite the authorities on its use since its discovery by Dr. Duncan of Edinburgh in 1803.

The record of Case 2 shows that 115 grains of quinin were given the patient within one hour after his arrival at the hospital. This may impress many as an aggressive measure, but, regardless of any impression of this character, I believe the future will record many larger doses. Experience will, no doubt, demonstrate that the timid practitioner will reserve the application of this method as a substitute for strychnin and alcohol, which are so frequently administered during the excitement prior to dissolution.

I strongly maintain that the use of stimulants, alcohol and strychnin, prior to the stage of resolution, is a dangerous practice, as it increases the mechanical conditions that are distressing the patient instead of strengthening the disabled heart.

I find that bromid of lithium in combination with chloral controls the nervousness and delirium which is probably produced by toxemia, much better than does morphin, as the latter given in sufficient quantity to alleviate these conditions not only embarrasses respiration, but interferes with the secretions.

It would not be surprising if the near future revealed some interesting knowledge concerning the incubation period.

The absence of complications, with one exception, in the last 50 cases, has possibly been influenced by the treatment. I do not feel justified, however, in making any positive claims of this character on so limited a number of cases.

I have discarded all external applications, and dress my patients with as light-weight clothing as possible. Expectorants, excepting as a vehicle, are seldom used. A liquid diet, with plenty of plain alkaline drinking water, is advisable. The syrup of glycyrrhiza and yerba santa is an excellent agent in which to suspend quinin, and also acts as a pleasant cathartic. Carbonated waters and solid food should be avoided prior to beginning resolution, as any distension of the stomach will not only interfere with respiration, but will embarrass the heart action.

We have been taught that it is impossible to modify or to shorten the duration of this disease; but must we go on indefinitely and accept such an ultimatum, or should we, on our own responsibility, lend efforts that will secure more practical results?

To associate therapeutics with the expectant plan of treatment is objectionable on account of the lack of any specific agent; watching and waiting and expecting Nature to cure so formidable a disease as pneumonia does not impress me as rational or modern medicine.

In the 50 cases responsible for this article, the ages ranged from 7 to 56 years. In nearly 80 per cent. the right lung was attacked, principally the lower lobe.

The most prominent feature that recommends my treatment of pneumonia is the practical absence of cardiac depression and the early resolution that invariably follows. Broken or small doses of quinin and iron will not produce satisfactory results.

The 50 consecutive cases of pneumonia that I have now treated without a death were diagnosed in every instance by thorough examination.

The administration of quinin during the stage of resolution must be carefully watched, as small doses of from 5 to 10 grains will frequently produce cinchonism.

THE MOST ANCIENT MEDICAL PRACTICE LAWS.

THE CODE OF HAMMURABI, 2200 B. C.

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CHICAGO.

It has long been known that there was a celebrated lawgiver in the valley of the Euphrates called Hammurabi or Amraphel.[1] He was king of Babylon, and his rule extended over the whole of Mesopotamia from the mouths of the Tigris and Euphrates to the Mediterranean coast. There are frequent references to the code of Hammurabi in the Chaldean and Assyrian writers, and a few of his laws have been more or less perfectly known for half a century. He is supposed to have lived between 2885 and 2242 B. C., or about the time of Abraham.

Every physician will have a certain interest in knowing that nine of the 282 laws of Hammurabi refer to surgeons. These laws were discovered written on a monument of stone, eight feet high. It was found at Susa, Persia, in January, 1902, and in October of the same year a superb reproduction and translation of this oldest code of laws was published by the French government. The medical reader will be interested in the translation made by C. H. W. Johns and published in Edinburgh in 1903, or if he be more of an archeologist he will be delighted with the magnificent transliteration and translation by Robert F. Harper and published by the University of Chicago. It is worth while here to reproduce the nine paragraphs referring to medicine.:

215. If a doctor has treated a rich man for a severe wound and used a bronze lancet, and has cured the man, or if he has opened the eye of a rich man with the bronze lancet and has cured the eye of the rich man, he shall receive ten shekels of silver.

216. If the patient be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a rich man for a severe wound with a lancet of bronze and has caused the rich man to die, or if he has opened an abscess of the eye of a rich man with a bronze lancet and has caused the loss of the rich man's eye, one of his hands shall be cut off.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave.

220. If he has opened the abscess of a slave with a bronze lancet and has made him lose his eye, he shall pay half the slave's price in money.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If the patient is a poor man, he shall give three shekels of silver.

223. If he is the servant of a gentleman, the master of the slave shall give two shekels of silver to the doctor.

It appears from these laws that the physician and surgeon occupied a distinct social position in the ancient Assyrian society, and that even in those remote periods the surgeon was considered worthy of compensation. He received from the rich man a larger fee than from the poor man. He evidently made a good living, because he is supposed to have a slave to render for a slave and the money to pay for half the value of a slave in case a slave should lose his eye at the surgeon's hand. We may believe that in those remote days the abdomen was occasionally opened, because the fee for treating the sick bowel of the gentleman is distinctly mentioned, but no penalty is given outside of the general one in paragraph 218 for a failure to cure.

In the succeeding paragraphs of this code the veterinary is

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[1] Genesis, xiv. 1.

mentioned, and he receives compensation in a much smaller degree for his services, and he is obliged also to suffer when he fails to cure.

In the preceding paragraph of the code, 209, an interesting law is promulgated: "If a man has struck the daughter of a gentleman and has caused her to miscarry, he shall pay ten shekels of silver for the miscarriage." It will be noticed that this is the price of a capital operation on a rich man.

Taking the code all in all, one is compelled to look on the civilization of the Euphrates 4,000 years ago as marvelously similar to our own except possibly for its lack of bookish culture. The view of life which is given in the code is imperfect, but many outlines of that civilization are sketched in a master hand. They had means of transportation, common carriers and public servants, who were under more obligation and stricter rules and regulations than private individuals. They had storehouses, commission merchants, money lenders and borrowers of money and renters of real estate, and in many respects their laws in relation to these economic factors were more humane, equitable and reasonable than our own.

At this particular juncture one might ask if the commission business existed among physicians and surgeons in the valley of the Euphrates. But on this point the code is silent. If the man with the bronze lancet had runners out, either in the guise of female booksellers and male peddlers of patent preventatives, or commission men practicing among the Elamites or in the suburbs of Babylon, no cases of the kind ever came to djudication and monumental inscription in the market place Susa.

A number of laws are devoted to the relations of man and wife, to fidelity and infidelity between them, and to other sexual and household economic affairs. They form a very considerable part of the code, paragraphs 129-184 inclusive. Noticing an abstract in The Journal, November 12, page 1485, in which Baudouin is said to be awaiting with interest the article yet to be written on the husband of the medical woman, I wish to recall the fact that a matter of this sort was recognized by the code of Hammurabi, and that several paragraphs were necessary to regulate the conflicting relations of such a husband and wife. In paragraph 144 is the first mention of the relations of such a husband to such a wife, namely: "If a man has espoused a votary and that votary has given a maid to her husband, and she has brought up children, and that man has set his face to take another wife, one shall not countenance that man; he shall not take another wife." Paragraph 145: "If a man has espoused a votary and she has not granted him children, and he has set his face to take another wife, that man shall take another wife; he shall cause her to enter into his house. That other wife he shall not put on an equality with his wife." In two succeeding paragraphs it denies the woman the privilege of selling such a maid who has borne children to her husband, but allows her to sell one who has not borne children.

If it were possible, if by any means it could be brought about, the attention of the conferences, dioceses and houses of bishops ought to be called to these paragraphs of the code, 129-184, and carefully considered in their bearing on the prevention of marriage of either party after divorce or the prevention of divorce itself.

Physicians as Statesmen.—The medical profession is fairly well represented in the Canadian Senate as well as in the Canadian House of Commons. According to the *British Medical Journal*, there are nine physicians in the former and fifteen in the latter body. France is still the country where medical men are most prominent in politics; in the Senate there are thirty-nine, and in the Chamber of Deputies fifty-one. Many of them, however, like M. Combes, M. Clemenceau, and M. de Lanessan, are politicians first and physicians only to the extent of holding a diploma. The *Lancet* states that in the Italian parliament, which was recently elected and is now in session, there are twenty-two medical deputies, representing wards in eighteen provinces of Italy. The list includes several well-known names, such as Baccelli and Santini for Rome, Celli for Cagli, Sanarelli for Bibbieno, and Rummo for Benevento.

Special Article.

IMMUNITY.

CHAPTER I.

PARASITISM, INFECTIOUSNESS, CONTAGIOUSNESS.

Parasitism.

Parasitism is the condition in which a plant, or an animal being, lives on or within another living organism. A true parasite always derives its sustenance from the tissues of its host.

Some parasites may live on a host without causing appreciable damage, that is, they are non-pathogenic parasites. In this case they may derive their nutrition from some of the excreted non-living products of the host, living as pure saprophytes,[1] or the amount of nutritious substance which they obtain from the host may be so little that the health of the latter is not impaired.

There is another large class of organisms, however, which under the proper conditions cause severe diseases in the host. For example, there are many pathogenic microbes which live in and on the skin without doing harm, but if certain ones reach the deeper tissues, they may institute pathologic processes. *Any organism which is able to cause pathologic tissue changes or to set up abnormal symptoms is classed as a pathogenic parasite.* The abnormal processes which they set up are our infectious diseases.

Infectious Disease.

An infectious disease is one which is caused by living organisms which have in some way been introduced into the tissues of the body. Accordingly the word has reference to the nature of the cause of the disease. It is from the Latin *inficire*, meaning to place in or into.

Infestation and Infection.

Where living organisms exist on a body surface, as the skin or intestinal tract, the surface is said to be infested; the skin, for example, is infested with pediculi. One may also say that the intestinal tract is infested with tape worms, but here the distinction between infestation and infection is not to be drawn so sharply; surely when the larvæ penetrate the intestinal wall and reach the circulation or distant organs we must speak of infection. But even the adult tenia as it exists in the intestines may cause erosions of the mucous membrane or may perhaps burrow a slight distance into the wall, a condition which approximates the action of the larvæ in passing through the wall; accordingly at some point the distinction between infestation and infection would have to be an arbitrary one. It is more convenient to confine one's self to the word infection.

Contagiousness and Infectiousness.

Confusion sometimes arises in using the words infectious and contagious. A contagious disease is one which may be transmitted to another by direct or by indirect contact with the one who is suffering from the infection; the word has reference to the manner of transmission of an infection. Non-infectious diseases are never contagious. Contagiousness is well illustrated in those diseases in which the transmission takes place through the air, as seems to be the case in smallpox and scarlet fever. Here there may be a contagious zone of atmosphere surrounding the patient, in which the virus is present, and by which the agent reaches the lungs of one within the zone. Contagiousness is even more striking when it takes place through the medium of some inanimate substance, such as clothing or toys, which were previously within the contagious zone or in direct contact with the patient. Such substances, fomites, were formerly thought to be of great importance in the spreading of yellow fever; a theory which has been entirely exploded by the proof that this disease is spread by the bites of infected mosquitoes.

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[1] A saphrophyte is defined as a vegetable organism which lives on dead organic matter. An organism which is habitually saphrophytic may be under the proper conditions a pathogenic organism (bacillus of malignant edema). And, on the other hand, a pathogenic parasite lives a saprophytic life when it grows in our artificial culture media.

Contact Infection.

Infection Atrium.

Typhoid fever is not highly contagious. There probably is no infected zone of atmosphere about the patient in the sense that there is about a scarlet fever patient. Yet it frequently happens that the nurse contracts the disease while caring for her patient. It is likely that she has in some way transferred the bacteria from the patient's sputum, urine, feces or skin to her lips or hands so that eventually they found their way to the intestines. At the same time it is not improbable that the point of entrance for the germs, i. e., the infection atrium, may at times be the lungs, the bacteria having been inhaled. However, typhoid fever is usually a "water borne" disease, seldom "air borne."

We are to look on malaria as a strictly non-contagious disease, although no doubt is possible as to its infectiousness. No amount of personal contact with the patient will transmit it to another. To accomplish transmission the parasite must be actually injected into an individual, an event which happens exclusively, it is believed, through the bite of a mosquito which had previously fed on the blood of a malarial patient. In all probability the same is true of yellow fever.

Tetanus is another noted example of an infectious disease which is not acquired by contact with one suffering from it.

The special methods of transmission which are utilized by the different infectious agents will be taken up later in considering immunity to the individual diseases.

Pathogenesis.

The various parasites have different ways of injuring the body. The itch mite burrows into and beneath the epidermis, causing mechanical irritation as well as the inflammatory reaction produced by its toxic excretions. The loss of blood caused by some intestinal parasites, and the hemorrhage which follows from the wounds, often leads to grave anemias and the general changes which are caused by such anemias. This is especially the case in the duodenal infection with *Ankylostoma duodenale* (ankylostomiasis).

A certain variety of *Filaria sanguinis hominis* produces disorders by mechanically blocking the lymph channels.

The plasmodium of malaria, aside from the febrile disturbances seen in malaria, causes anemia by the destruction of blood cells.

Mechanical and Toxic Injuries.

It is generally said that the bacteria produce disturbances in both a mechanical and a toxic way. However, the more we learn about bacterial infections the more important do the toxic phenomena become. It is doubtful if any pathogenic bacterium is entirely devoid of toxic powers.

In lobar pneumonia we have a good example of a mechanical disturbance of importance. The alveoli become filled with a fibrinous and purulent exudate which makes a large area of pulmonary tissue unavailable for respiration. Yet, even here, the mechanical disturbance has arisen only as a result of the previous toxic action of the pneumococci on the capillary walls and the alveolar epithelium, permitting the escape of the blood and serum; and the accumulation of the leucocytes is no doubt due, in part, to the toxin of the coccus rather than to the bacterial cells alone.

It is probable that the emboli of bacteria which are sometimes found in the capillaries and small arteries cause disturbances through the shutting off of so much circulation, but still greater damage surely results from the toxins which are formed by the microbes making up the emboli.

Effects of Toxins.

The toxins of bacteria often show a remarkable selective action on one organ or another. Some bacteria through their toxins destroy the red blood cells to a great degree (staphylococcus and streptococcus); other toxins have a special affinity for the nervous tissue (tetanus); some attack particularly the endothelium of the vessels, causing many minute hemorrhages; in diphtheria and typhoid numerous areas of necrosis are found in the lymphatic structures. It is a somewhat common property of bacterial toxins to cause areas of necrosis in the parenchymatous organs, such as the liver and kidney. The consequences of such necroses depend naturally on their extent. It is said that in anthrax infections all the glycogen may disappear from the liver, and we would expect the functions of various organs to be affected through similar toxic actions. The albumin and casts which appear in the urine in many acute febrile diseases are, of course, the result of toxic action on the epithelium and endothelium of the kidneys.

A conspicuous effect of the micro-organisms which cause some chronic diseases is the development of new connective tissue and vessels; this is seen especially in tuberculosis, syphilis and actinomycosis. The import of the new connective tissue depends on its location. A large amount of it may form in the pre-existing connective tissues with no consequent harm, but if even a small amount of such tissue has been formed in a suitable place in the brain, as may happen in syphilis, the results may be grave.

Infectious Substances.

It has been stated above that infectious diseases are caused by living pathogenic organisms. Investigations have shown, however, that the toxic products of some organisms can be obtained and separated from the organisms themselves by filtration, and that the microbe-free toxins when injected into animals will cause the same symptoms as the bacteria themselves (tetanus and diphtheria). Accordingly, for the sake of convenience, these toxins may also be considered among the infectious agents when they are separated from the bacteria. The various infectious agents, including these toxins, find their proper places in the following classification, which for the most part is that of von Behring:

I. Living (i. e., pathogenic parasites).
  A. Macroparasites (e. g., intestinal worms, pediculi).
  B. Microparasites.
    1. Bacteria (fission fungi, i. e., each cell divides into two in proliferating).
    2. Fungi of more complex organization (e. g., aspergillum, oidia).
    3. Protozoa (e. g., *plasmodium malariæ*, *ameba coli*).
II. Non-living (i. e., toxins).
  A. Animal toxins (e. g., snake venom).
  B. Vegetable toxins.
    1. Non-bacterial (e. g., abrin, from the jequirity bean; ricin, from the castor oil bean; these are strong red corpuscle poisons, but are only of experimental interest).
    2. Bacterial.
      a. Soluble bacterial toxins (diphtheria and tetanus).
      b. Intracellular bacterial toxins, which are not separable from the cells in a soluble form.

(*To be continued.*)

Ozena.—Dionisio reports a number of cases treated by phototherapy and by radiotherapy with good results—amelioration or cure. In the *Rev. Hebd. de Laryngologie* he suggests the conclusion that light has a slow but constant curative effect on the ozenic process. Its immediate action is excitation of the mucosa, causing, when the light is intense, sneezing and hypersecretion. He has, however, never seen any serious inconveniences from this treatment except transient headache and vertigo. The effect of the light is evident not only in the parts most directly exposed but also elsewhere, and in most cases the sense of smell is either improved or fully restored. He attributes the effect to the antiseptic action, but still more to the improvement of nutrition by the action of the light. Similar good effects have been obtained by him in suppurative otitis and in certain forms of dry pharyngitis and catarrhs of the nose and posterior fossæ. There are certain difficulties in the treatment requiring special apparatus, which may embarrass the general practitioner and require or make more convenient the recourse to specialists or especial institutions for the light treatment.

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AUTOGENOUS REGENERATION OF NERVES.

The experiments of Bethe of Strassburg are attracting, and rightly, the attention of neurologists to an unusual degree. It would appear that Bethe has definitely established the fact that, on section of a peripheral nerve trunk, the distal portion can regenerate, in young animals at least, without any connection with the central stump. He has made a large series of experiments on the sciatic and other nerves. He excises long pieces and transplants the central stump so as to render any subsequent union with the distal trunk impossible. He has demonstrated that the myelin sheath and neurofibrils as well as the axon regenerate; he has shown that when regenerated the nerves are capable of conducting impulses; and more, that if the regenerated fiber be cut again the peripheral portion degenerates to the periphery, while its central portion, unconnected with either center or periphery, remains for a long time undegenerated. Conscientious autopsies have proved that the suggestions of Münzer and of Langley and Anderson that the regeneration can be accounted for by ingrowth of medullated fibers from branches of neighboring nerves to muscles, are without observational foundation. The regeneration occurs through the activity of the neurilemma cells in the course of the degenerating nerve. Regeneration is not due to the end organ, for Bethe has cut the sciatic high up and also in the popliteal space, has brought the two ends of this isolated piece together, has sutured them into a ring, and regeneration still occurred. Complete autogenous regeneration appears to be possible only in young animals. In adult animals the regeneration is incomplete if it occurs at all, owing, in all probability, to the lack of sufficient energy on the part of the tissues to carry on the process.

These recent experiments throw new light on the trophic function of the neuron. It was formerly supposed that regeneration occurs always by outgrowth of the axons in the central stump, and that it depends on trophic influences passed along the axons from the ganglion cells. Now we know that the peripheral fiber can regenerate when it is absolutely deprived of all influences reaching it from the central ganglion cell. Bethe admits that after autogenous regeneration occurs, connection with the center is necessary for the permanent welfare of the nerve, for otherwise it again undergoes slow atrophy and degeneration. The fact is established, however, beyond dispute, we think, that in young animals the dependence of the nutrition of a peripheral nerve fiber on the cell body of the neuron of which it forms a part is far less important than we have been accustomed to believe.

It should be noted that Bethe's work is in reality the continuation of some work done by Howell and Huber in 1892. These observers demonstrated autogenous regeneration of what they called "embryonal fibers," but they did not follow the process far enough to observe the complete regeneration of the fiber, as Bethe, by using young animals, has been able to do.

A review of the literature reveals the remarkable fact that the whole process of autogenous regeneration was accurately observed and described as long ago as 1859 by two French observers, Philipeaux and Vulpian. These investigators excised large pieces of the sciatic, median, hypoglossal and lingual nerves in young dogs, guinea-pigs and chickens, performing the experiments in a way that rendered union of the central and peripheral stumps difficult or impossible. They exposed the nerves after some months, and found that they did not have that shrunken appearance which is characteristic of degenerated nerve trunks; instead, they looked white *and plump and felt firm. On mechanical and electrical* stimulation of these peripheral nerve trunks, they were able in the case of motor nerves to cause contraction of the corresponding muscles, while the animal itself reacted in no other way to the stimulation. They examined the regenerated nerve trunks under the microscope and found large numbers of typical nerve fibers with myelin sheaths and axis cylinder processes. They further showed that if the regenerated nerve were cut a second time in its course, the peripheral portion underwent a second degeneration, while the central, now isolated, end remained intact. They felt sure that the nerves had really regenerated and had not simply remained undegenerated, for examination of control animals a few days after section demonstrated complete degeneration and entire loss of excitability. Philipeaux and Vulpian, therefore, concluded that autogenous nerve regeneration following complete degeneration is possible in young animals, and they put forward the view that, even in adult animals, no outgrowth of new fibers from the central stump occurs.

The findings of Philipeaux and Vulpian were not confirmed by other observers. Schiff seems to have repeated the experiments on animals 5 months old with negative results, and other writers denied the possibility of the results apparently without actually trying experiments for themselves. Vulpian himself took up the subject again in 1874. He repeated the experiments with results similar to those formerly obtained, but, curiously enough, interpreted his findings differently. He concluded that the regenerated fibers found must have come in through anastomoses with neighboring nerves—anastomoses too small to be visible to the naked eye. His interpretation was in accord with the views of Wallerian degeneration and regeneration which had come to prevail. Subsequently the new histologic methods were introduced which permitted of a better staining of the axis cylinder processes. Stroebe. von Notthaft and others thought that they brought irrefragable proof that in the repair of nerves the regenerated axons always grow out from the central stump into the degenerated nerve. The scientific world accepted their conclusions, especially as at about this time the neuron doctrine was developed, the supporters of which at first laid great emphasis on the cell as an absolutely independent histologic and physiologic unit.

We have pointed out in these columns at various times the gradual modifications which the neuron doctrine has undergone. Our readers will recall that many histologists now believe that the neurons, though still legitimately to be regarded as the most important architectural and physiologic units in the nervous system, are not as absolutely separated from one another structurally, nor as totally independent of one another physiologically, as it was thought that they were when Waldeyer formulated the doctrine in 1891. Indeed. many believe that the "contact doctrine" must be given up and that a more intimate interneuronal connection must be granted. Nissl and a few others, wrongly confusing the "contact doctrine" with the neuron doctrine as a whole, have advocated that the latter be abandoned. The majority of the anatomists, physiologists and clinicians working on the nervous system, however, hold as firmly as ever to the neuron doctrine in general. though they modify it in detail.

An important service has been done by Bethe in repeating and extending the experiments mentioned and thus rescuing from oblivion the valuable discoveries of Philipeaux and Vulpian.

THE PORTLAND SESSION AS AN ATTRACTIVE VACATION.

The American Medical Association will hold its next annual session at Portland, Oregon, July 11-14. This place of meeting—far to the West—will require a journey of unusual length for those living east of the Mississippi, and especially for those in the New England and Atlantic Coast states. Many who are in the habit of attending the Association sessions will naturally hesitate before deciding to take such a long journey simply to attend the session—valuable as that privilege is—but the occasion offers an unusual opportunity for a splendid vacation, and this was one of the reasons why the date was made a month later than usual.

Our object at this time is to emphasize this fact: The trip to Portland and return may be made a memorable one if those who propose to take it will study out the possibilities beforehand. The vast territory west of the Missouri River is an unknown country to the majority of the members of the Association, but it is a country so full of grand scenery, natural wonders and boundless, undeveloped, natural wealth that to see it alone is worth all the trip will cost. The railroads of the West are much more liberal than are those of the East in allowing passengers to break the journey at attractive points, and each road is already making preparations to accommodate and to please those who patronize it. Of course, no one will go and return the same way, and as there are fifteen or twenty different routes, and as each has some special attraction to offer, it will not be an easy matter to decide which two promise the most. The possibility of visiting Alaska, northwest territories, Hawaiian Islands, California, Mexico, etc., on this trip is also worth considering. We expect shortly[1] to give a brief description of the various routes, but we advise those interested to write to the various railroads for circulars and for any information they may desire. The rates, as we have before intimated, will be $45 from Missouri River points, to which must be added the fare from points east of the Missouri River, which will probably be one fare for the round trip.

One of the great attractions, if not the greatest, will be the Yellowstone Park. If a sufficient number can be secured, THE JOURNAL proposes to arrange for a special train to start from Chicago June 30; this will stop six days at the park, arriving in Portland Monday morning. We can promise those who patronize it a most enjoyable outward journey. Arrangements will have to be made with the park management some months ahead, and hence it is necessary to know very soon if a sufficient number can be depended on to warrant arranging for the dates. Will those who desire to visit the Yellowstone Park on the way to Portland write us?

CONGENITAL ICTERUS WITH SPLENOMEGALY.

The large amount of study which has been devoted to the spleen in the last few years has led to a reclassification of splenic diseases. The association of certain forms of splenomegaly with hyperglobulia, and of other forms with anemia has been well emphasized in recent literature. Some writers have classed with splenic anemia certain cases of icterus associated with enlargement of the spleen, which recent study teaches belong in a class by themselves. According to von Krannhals,[2] who has quite recently collected all of the published cases, the association of congenital icterus with chronic spleen tumor was first noted by Minkowski in 1900. One writer has remarked "the new things in medicine are the things which have been forgotten," and von Krannhals has overlooked the fact that similar cases were reported by Claude Wilson[2] as early as 1890.

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[1] Information regarding the Portland session, railroad rates, etc., appears frequently under "Association News." In this issue hotel arrangements are described. Under Queries and Minor Notes also is some information in reply to a correspondent.

[2] Deutsches Archiv für klinische Medizin, vol lxxxi, Nos. 5 and 6.

The disease seems to be one which must be added to the few perfectly definite family diseases, though it does not seem to follow such definite lines of transmission, as does hemophilia, for example. There is some evidence to show that it is usually transmitted from mother to son, and from father to daughter. The main lesions are icterus, congenital in character, and associated with more or less enlargement of the spleen. The icterus usually varies in intensity from time to time, and in some cases is markedly influenced by the emotions, especially anger, or by exposure to cold. In some cases overindulgence in food or in alcoholic drinks served to intensify the icterus. In some instances the patients complained of no interference with their health, in others more or less serious disturbances, usually in the form of gastroenteric derangements, occurred from time to time. In some of Wilson's cases these attacks were accompanied by fever, and in all in which they occurred the jaundice was generally intensified. Skin affections, such as usually accompany obstructive icterus, are uncommon; a few patients had at times urticaria, xanthelasma or pruritus. Nearly all were dark-haired, sallow individuals who would be classed under the bilious temperament. In some instances nervous disturbances in the form of neurasthenia or hysteria were present. In one or two cases pains in the joints and even rheumatoid arthritis occurred. Aside from the icterus, the only constant physical sign was the enlargement of the spleen, which was in nearly all cases palpable, usually hard and described on palpation as resembling the spleen of chronic malaria. The liver was usually unaffected, though in a few cases it was slightly enlarged and tender, and one or two patients suffered from gallstones as a complication. The urine was at times normal, though in many cases it contained traces of urobilin. The stools did not show lack of coloring matter except in one case of the 26 collected by v. Krannhals. The blood in all carefully observed cases has shown more or less anemia; v. Krannhals noticed also a considerable variation in the size of the red cells and that a great many cells showed polychromasia.

Only one autopsy has been performed in this condition and that was in the case of Minkowski. The important lesions were found in the spleen and kidneys. There was no cirrhosis of the liver and no mechanical blocking of the bile passages. The spleen was enlarged, but showed nothing microscopically except hyperplasia and hyperemia. The cortex of the kidneys showed a peculiar brownish color, which was shown microscopically to be due to the presence in the cells of the convoluted tubules of large quantities of pigment granules giving the iron reaction.

The exact nature of this peculiar disease is not clear. It is evident that it is not due to mechanical blocking of the bile passages, as the stools are always well colored, and even the urine may be completely normal. Certain French writers have advanced the idea that there is a low grade of angiocholitis due to mild infection of the bile passages. The single autopsy does not bear out this view. The fact that the blood always contains bile pigment and the constant involvement of the spleen suggests some disturbance of blood destruction as the cause of the condition. Minkowski suggests that the primary lesion may be in the spleen itself. Until our knowledge of the exact part played by the liver and spleen in blood physiology and pathology is more definite the true nature of the condition will probably remain obscure.

PROGNOSIS IN TUBERCULOSIS.

So much has been said in recent years of the curability of tuberculosis, if the disease is properly treated in the incipient stage, and of the confidence with which lasting improvement can be looked for, under favorable conditions, even in the more advanced cases, that a very salutary hopefulness has been inspired in both physicians and patients. This is of itself an excellent addition to any method of treatment. Of late, however, there are some signs of a reaction. At times physicians have seen their hopes fail of realization, even though patients have been faithful in following directions and though apparently they have been in the most favorable surroundings for a cure.

This has led many physicians to believe that the merits of the open-air, abundant food treatment are exaggerated, and this, like other methods of treatment, is destined to be a disappointment.

Perhaps the best antidote for this reactionary feeling is a frank consideration of the cases of tuberculosis which have not a favorable prognosis, even though the disease may not be far advanced when the patients come under consideration. It is comparatively easy to glean from recent literature the reasons why, in individual cases, the results from the open-air treatment are not satisfactory. Practically all agree that in patients in whom pulmonary tuberculosis has run a rapid course the outlook is seldom hopeful. If the history extends only over three months, and if there is considerable loss of weight, even though there be no cavity formation, and though not much of the lung be involved, the prognosis is never favorable. Such patients have little power of resistance against the tubercle bacillus and ultimately are almost certain to become its victims. Another class of cases in which the prognosis is always doubtful includes those patients with only mild lesions who present a rapid pulse. The tubercle bacillus seems especially to affect the pulse and, as a rule, does not cause much disturbance of temperature. A high temperature is generally due to secondary infection. Children with cold abscesses almost invariably have rapid pulse, though they generally have very little fever. If a small number of bacilli, therefore, are capable of so affecting the pulse, there is evidently a similar lack of vitality to that which exists in the cases which lose weight rapidly. It is a curious contradiction of what is usually considered to be the case that high temperature in tuberculosis does not necessarily indicate a bad prognosis. If a short walk sends the pulse up 30 points in a tuberculous patient, it may be assumed that the patient lacks resistive vitality. It has been pointed out also that the tendency of an individual to be normally under weight is an unfavorable symptom. A man who has all his life been twenty pounds under normal weight is almost certain to be especially susceptible to infection by the tubercle bacillus. As a rule, insurance companies prefer to take a man whose weight is normal, even though he has a family history of tuberculosis, rather than one who is under normal weight without any history of tuberculosis in his family.

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[2] Clinical Society's Transactions, vol. xiii.

There are other symptoms in individual patients which, while not necessitating an unfavorable prognosis, always make the outlook more grave, even in the apparently favorable cases. Prof. Burney Yeo has pointed out that the most important climatic element for the cure of consumption is a daily variation in temperature of more than twenty degrees, which, he claims, acts on the organism in a way to produce a conservative reaction against further bacterial invasion.

There are some patients who can not stand such variations of temperature, however; they become so intensely uncomfortable under those conditions that their appetite suffers and, of course, a cure can not be expected when an abundance of food is not taken. Such patients, as well as those who have exaggerated catarrhal tendencies, so that variations of temperature cause them to have acute exacerbations of their tuberculosis and troublesome forms of bronchitis, will do best and live longest if sent to a mild, unvarying climate, such as is to be found in certain parts of the South. The most that can be hoped for from such climatic treatment, however, is a prolongation of life, not an enduring, absolute cure. These patients may be made very comfortable by such change of residence, but, as a rule, they will have to stay in their new homes the remainder of their lives, and probably the years left to them will not be many.

TRUTH AND POETRY CONCERNING URIC ACID.

III.

It has been seen how the hypothesis that uric-acid formation is due to an oxidation of albumin, which stops short of urea, gradually came to be discredited. The keen Salkowski, in 1870, had pointed out that if the uric acid in leukemia is due to faulty oxidation, other incomplete oxidation products must also be present. Those most likely to occur would be oxalic acid and allantoin, but careful studies of the urine in leukemia revealed no increase in these compounds. Salkowski, in 1871, therefore rejected Bartels' conception and inclined to view with favor Ranke's hypothesis that uric acid is derived from xanthin bases and the spleen. Against this was the observation that xanthin bases appeared to occur in only very minute quantities in the tissues, and, further, that feeding experiments made with xanthin on dogs (an unsuitable animal, as will be seen) caused no increase in uric-acid excretion.

About this time there developed that remarkable series of researches which led to our modern knowledge of the nucleins and their cleavage products—researches which, as they were destined to exercise an important influence on uric-acid studies, must here be briefly referred to. Miescher, in 1874, working on salmon sperm, had isolated nucleinic acid, and had shown that xanthin bases are formed when it is decomposed. Kossel, 1879, took hold where Miescher was all too early compelled to leave off, and showed that the xanthin bases, namely, xanthin, hypoxanthin, adenin and guanin can be obtained from nuclein; they are not present as free bases in the nuclein, but in organic union in the nucleinic acids. Kossel,[1] in 1881, immediately recalled the old ideas of Scherer and Ranke, and suggested again that the xanthin bases might be forestages of uric acid. The main argument to the contrary, as we pointed out above, had been the sparsity of xanthin bases in the tissues, but Kossel showed that if the organically combined bases be considered, the amounts present, especially in organs like the spleen, liver and kidney, are large. A year later[2] he emphasized in this connection two facts: (1) that the muscles of those animals (birds and reptiles), whose chief metabolic end product is uric acid, are much richer in hypoxanthin than those of mammals; and (2) that in leukemia the nuclein bases in the blood are increased. It is not surprising, therefore, that experimental feeding of the xanthin bases was again resorted to (Baginsky, 1883); but the results left the matter in doubt, and the problem was not to be easily solved.

An important paper by Stadthagen,[3] in 1887, reported experiments on the feeding of xanthin to dogs, with negative results, so far as an increase in uric acid was concerned. Stadthagen was of the opinion for a time that the nucleins of the food are split sometimes with formation of xanthin bases, at other times with formation of uric acid. He thought it possible that when xanthin bases are once formed from nuclein there can be no formation of uric acid. He therefore fed nuclein directly to dogs with the hope of finding the uric acid increased; the results were, however, negative, though Stadthagen suggested that this might be due to the fact that the nucleins of food are "dead" and may behave differently in metabolism from the nuclein of living cells. This investigator finally, apparently reluctantly, returned to the old view that uric acid is derived from albumin. His studies had led him to the belief that an origin from nuclein or xanthin bases can not be proved. It seemed to him positively demonstrated (1) that an increase of uric acid is absolutely dependent on the albumin-intake (irrespective of nuclein or xanthin bases), and (2) that uric acid. so abundant in children, must be derived in them from the casein of milk which contains no xanthin bases.

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[1] Kossel, A.: Ueber die Verbreitung des Hypoxanthins im Tier- und Pflanzenreiche, Ztschr. f. physiol. Chem., vol. v, 1881, p. 267.

[2] Kossel, A.: Zur Chemie des Zellkernes., Ztschr. f. physiol. Chem., vol. vii, 1882, p. 7.

[3] Stadthagen: Ueber das Vorkommen der Harnsäure in verschiedenen tierischen Organen, ihr Verhalten bei der Leukämie und die Frage ihrer Entstehung aus den Stickstoffbasen, Arch. f. path. Anat., etc., Berl., vol. cix, 1887, p. 390.

The fallacy of Stadthagen's reasoning is obvious. In the first place, careful experiments have shown that uric-acid excretion is completely independent of the general nitrogen-metabolism.[4] Haig had asserted. it is true, that uric acid and urea are always formed in the same proportion (1:33); this view was entirely arbitrary in its origin, and Haig tried to explain the facts contradicting it by assuming that, when the proportion varies, the discrepancy is due not to differences in formation of uric acid, but to increase or diminution in the alkalinity of the blood, with correspondingly increased or diminished solubility and elimination of uric acid in the urine. Herringham and Davies, in 1891, showed that the excretion of uric acid varies independently of the blood alkalescence as determined by titration, and a year later Herringham and Growes stated that experiments proved that uric-acid excretion is independent of the ammonia excretion in the urine (which they regarded as a measure of the latent acidity). A review of the various experiments "after the event" shows that the investigators who found a definite dependence of uric-acid excretion on albumin-intake had used almost exclusively meat as food in the experiments; where other albumins were administered such dependence was not found to exist. In the second place, Stadthagen was wrong, as Wiener points out. in assuming that the formation of uric acid on a nuclein-free diet (such as milk fed to young infants) makes its origin from xanthin bases or nuclein impossible, for it has been proved that animal cells are capable of manufacturing nucleins from other nitrogenous substances,[5] and this synthesized nuclein may serve as a source of uric acid.

In 1888 Mares put forward the hypothesis that uric acid is a product of the activity of the cell-protoplasm, "of that chemical process which forms the basis of cell-activity." While urea, according to Mares, arises directly from the decomposed albumins of the food, uric acid, he thought, is formed only indirectly from the albumins of food, through gradual transformation of the organized albumins of the body cells.

The time had now come for a very important discovery. It had remained for Horbaczewski,[6] in 1889, to establish with certainty the direct relation of uric acid to the nucleins. He squeezed spleen pulp, mixed it with defibrinated blood, passed air through it and found that large amounts of uric acid are formed. He believed, therefore, that the forerunner of the uric acid exists in the spleen, and that this forerunner, probably nuclein or one of its cleavage products, yields uric acid on oxidation. Later he isolated nuclein from the spleen and prepared uric acid directly from it; in a similar manner he made uric acid from the nuclein derived from other organs, and these findings, with slight modifications, have been controlled and confirmed by Giacosa (1891), Spitzer (1899), and others. Horbaczewski next resorted to feeding experiments, using rabbits and human beings instead of dogs for the tests, and found an increase in uric acid two hours after the administration of nuclein. All subsequent observers confirm this origin of uric acid from nuclein.

In spite of the fact that Horbaczewski had made a very important discovery, he unfortunately soon strayed into a wrong path. He assumed, without adequate basis. that only the nucleins of leucocytes take part in uric-acid formation, and denied the direct relation of other nucleins to the substance. With this phase of the subject we expect to deal next week.

SOCIETY MEMBERSHIP AS A QUALIFICATION.

It is announced that a man of means is to build four hospitals along the line of a certain railway extending through four states. The general public is to be admitted to these hospitals, and may be under the care of any physician "who is a member of the state medical society." As the profession becomes better organized, it will be recognized in more and more lines of activity that membership in representative medical societies is a good indication of the standing of a physician.

CORRESPONDENCE SCHOOLS OF MEDICINE.

In addition to correspondence schools of nursing and of pharmacy, there are now schools which teach medicine by mail. It is bad enough to propose to teach nursing by correspondence; when it comes to medicine it seems that the limit has been reached. In view of the state laws, it is difficult to understand how students of medicine can be obtained by these "schools," unless the students are in the dark concerning the state regulations governing the practice of medicine. In the present condition of medical knowledge it is difficult in four years of personal contact with teachers for a student to equip himself fairly for the practice of medicine. And yet these correspondence schools are finding dupes, or it would not pay them to advertise.

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[4] Salkowski, 1889, von Noorden, 1893.

[5] Tichimiroff, 1885, Kossel, 1886, Burian and Schur, 1897.

[6] Horbaczewski: Untersuchungen über die Entstehung der Harnsäure im Säugetierorganismus, Monatshefte f. Chemie, vol. x, 1889, p. 624.

A MEDICAL CONGRESS ON SHIPBOARD.

The misfortune which befell a party of physicians en route to the recent Pan-American Medical Congress at Panama, namely, the delay of the ship so that they were too late for the congress, did not prevent them from having a little congress of their own on board. It seems that the party sailed from Baltimore in what should have been ample time to reach Panama, but the weather was bad, fog prevailed, and the machinery broke. When the two-score physicians realized that they would miss all but the last day of the congress, they proved themselves equal to the emergency and held their own little congress on board the ship, and the pleasant sequel of their ability to meet this unusual situation was the acceptance by the Pan-American Medical Congress of their branch meeting as a part of the proceedings of the regular congress. A medical congress is not usually held on board ship, and hence this one had a particular zest and spice about it.

AN ANTICIGARETTE MOVEMENT IN SPAIN.

We learn from the *London Globe* that the government of Spain has had brought to its attention the evils of racial degeneration due to the excessive use of tobacco, especially by the young. The minister of the interior, it is said, has drafted a bill absolutely prohibiting the sale of tobacco, cigars or cigarettes to any person under 17 years of age, under penalty of fines of from $10 to $100 for each offense, and of imprisonment in aggravated cases. It is said that the youth of Spain, especially the working classes, are largely illy-nourished and of feeble constitutions, and that much of their scanty income is wasted on tobacco, thus keeping up and aggravating the evil. Tuberculosis makes great ravages among them, and the state of affairs is such that the government evidently thinks it full time to inaugurate a social reform to curb the evil, as far as the use of tobacco by the young is concerned.

WHEN ECONOMY AIDS HYGIENE.

When the requirements of sanitation and prophylaxis of disease demand additional expenditure of money by those who are interested in keeping down expense, sometimes regardless of other considerations, trouble ensues. There is then required a campaign of education and of enlightenment of the people and of the lawmakers so that proper legislation may be secured to enforce what may not be willingly done otherwise. We are much interested to note the report of the Central Railway of New Jersey, which has recently installed a system of car cleaning by the vacuum sweeping system. The dirt and dust is drawn from all the surfaces in the car by suction through a pipe. The work is done effectively, hygienically, and—a noteworthy fact—economically. The railroad management announces that this system reduces the cost of cleaning so that two cars can be thoroughly cleaned under the new system at the same expense of time and money as was formerly consumed in cleaning one. This fact, in connection with the increased sanitary value, is sure to cause a general introduction of this method within a short time, not only by other transportation companies, but by theaters, hotels and places of public resort.

THE HALL OF FAME.

The absence of the name of any physician in the Hall of Fame of the University of New York influences the editor of the *Western Medical Review* to remark that "it is the obvious duty, not only of physicians themselves, but of the public, to see to it that in the election this year not less than three physicians are selected." The editor proceeds to recommend Benjamin Rush, David Ramsay, John Collins Warren, J. Marion Sims, Oliver Wendell Holmes. Under the rules, only persons born in the United States, now dead ten years or more, and most eminent in their respective fields, are eligible for nomination. The original plan was to select names for fifty of the 150 panels in 1900, and five more every five years thereafter until the list would be completed in 2000. In 1900, out of 252 nominations made, only twenty-nine received the required majority (51) of the votes cast and were elected. This makes twenty-six to be selected this year. If the medical profession really wishes some of its illustrious men to be elected, the proper procedure, we suggest, is to place the matter in the hands of a committee, who will acquaint the members of the Council of the University of New York with the claims to greatness of certain physicians, so the vote on the nominations by the members of the council may be made with full knowledge concerning the medical candidates.

THE DEVELOPMENTAL OR MYELINOGENETIC REGIONS OF THE HUMAN CEREBRAL CORTEX.

A few years ago Flechsig interested neurologists greatly by his subdivision of the cerebral cortex into primary sense centers on the one hand and association areas on the other. Since that time he has been busily engaged in the further differentiation of the cortex on the basis of successive medullations of the fibers. He now recognizes between thirty and forty definite and distinctly different myelinogenetic regions. He thinks that each myelinogenetic region is provided with a conjugate pair of bundles, one bundle bringing impulses to the area, the other carrying impulses from it. A further view advanced by Flechsig concerns the close relation of the development of the sulci of the brain to that of the medullary sheaths of the various bundles going to the different areas. He distinguishes primary sulci, those which appear very early, from terminal sulci, which are the last to develop. The earliest sulci appear, he asserts, where the brain "ripens" first, while the latest sulci to appear correspond to areas of the cortex, the fibers of which become medullated late. In how far these views of Flechsig will be confirmed by other investigators can not yet be determined. His earlier statements concerning the association centers have been severely criticized by Dejerine, Hitzig and others. Bianchi agrees with Flechsig in as far as he recognizes that the anterior portion of the frontal lobes are devoid of projection fibers and are concerned wholly with processes of association.

Medical News.

DISTRICT OF COLUMBIA.

Health of the District.—The report of the health officer for the week ended January 14 shows the total number of deaths to have been 121, of which 78 were white and 43 colored. There were 109 births, of which 74 were white and 35 colored. At the close of the week there were under treatment 22 cases of diphtheria, 30 of scarlet fever, 118 of typhoid fever and 2 of smallpox.

Woman's Clinic Election.—At the annual meeting held January 4 the following officers were elected: President, Dr. E. L. Ragan; vice-president, Dr. Robert Reyburn; treasurer, Mary F. Case; secretary, Miss E. Clarke. Clinical staff—Drs. Ida J. Heiberger, Phoebe R. Norris, A. F. Faye, Ada R. Thomas, Mary L. Stroble, B. Rosalie Slaughter, Anna Bartsch and Robert S. Lamb. Consulting staff—Drs. H. L. E. Johnson, Mary Parsons, James F. Scott, Edward A. Balloch, George N. Perry, Albert L. Stanley and Randolph B. Carmichael.

Medical Society Election.—At the annual meeting of the Medical Society of the District of Columbia, held January 2, the following officers were elected: President, Dr. T. N. McLaughlin; vice-presidents, Drs. John D. Thomas and Murray G. Motter; corresponding secretary, Dr. Thomas C. Smith; recording secretary, Dr. Francis P. Morgan; treasurer, Dr. Charles W. Franzoni, and librarian, Dr. Edwin L. Morgan. At the meeting held January 11 Dr. James J. Walsh of New York addressed the society, and a smoker was afterward held at which he was the guest of honor.

ILLINOIS.

Influenza Epidemic in Peoria.—Peoria is said to be suffering from one of the most severe attacks of influenza in its history. More than 2,000 cases have been reported and the disease is spreading rapidly.

Hospital Staff Warned.—In his introductory remarks to the newly-appointed members of the Cook County Hospital staff President Bundage of the county board said:

> You have been selected as members of the county hospital staff without pull, political or otherwise. I want you to understand that if you *do* not live up to the rules governing the institution no pull of any kind will stand in the way of your resignation being asked for.

Chicago.

Professor Barker Appointed to a Professorship of Medicine.—The board of trustees of Rush Medical College has appointed Dr. Lewellys F. Barker to a professorship in medicine in that institution.

Mortality of the Week.—There were 591 deaths during the week ended January 21, equivalent to an annual death rate of 15.47 per 1,000. Pneumonia heads the list with 120; consumption follows with 79; Bright's disease with 51; heart disease with 37; violence with 35, and influenza with 22.

Honor Memory of Dr. Mary Harris Thompson.—On January 30 will be unveiled at the Art Institute with appropriate ceremonies the portrait bust of Dr. Mary Harris Thompson, done by Daniel French, which club women and other friends of Dr. Thompson are presenting to the Art Institute.

Decline of Tuberculosis.—In the Bulletin of the Department of Health the following record is given of the decline of consumption mortality:

> In the decade ended 1860 the annual deaths from consumption averaged 29.57 per 10,000 of population; in the decade ended 1870 they averaged 20.47; in 1880, average 16.74; in 1890, average 17.56; in 1900, average 15.89—a reduction of 46.2 per cent. in fifty years. In 1901 the rate was 14.19; in 1902 it was 14.04—the lowest point yet reached, and less than one-half the average of fifty years previous.

MARYLAND.

Recognition of Services.—Dr. John S. Fulton, secretary of the State Board of Health, has been presented with a handsome silver tea service in recognition of his services in the cause of public health. A letter signed with the names of the donors—physicians and others—accompanied the gift.

Talbot County Medical Society has elected the following officers: President, Dr Julius A. Johnson, Easton; vice-president, Dr. James A. Stevens, Oxford; secretary and treasurer, Dr. Philip L. Travers, Easton; delegate to state society, Dr. E. R. Trippe, Easton; and censors, Drs. Samuel C. Trippe, Royal Oak; Joseph S. Garrison, Easton, and Charles H. Rose, Cordova.

Affairs at the University of Maryland.—At the annual meeting of the General Alumni Association, January 18, Wilmer Brinton was elected president, and Dr. Eugene F. Cordell secretary-treasurer and chairman of the endowment committee. A university button was adopted and an address was delivered by Dr. Thomas Fall, president of St. John's College, Annapolis, advocating the establishment of a State University. A committee of five members was appointed to consider the matter and also a union of the university and St. John's College. Dr. Eugene F. Cordell has founded a university monthly, the name of which is "Old Maryland." On the editorial staff are Dr. R. L. Mitchell, medicine; D. W. Burroughs, law; J. Clarence Allen, dentistry, and C. W. Hornbrook, pharmacy.

Baltimore.

School Inspection.—The medical inspection of public schools will begin February 1, Drs. R. Tunstall Taylor and I. R. Page having been appointed inspectors.

Personal.—Dr. John C. Hemmeter has been elected a foreign member of the Deutsche Gesellschaft für Innere Medizin.——Dr. William Lee Howard has gone to Jamaica.——Dr. M. M. Whitehurst has gone to Mexico and California.

For Isolation Hospital.—Health Commissioner Bosley hopes to secure a municipal infectious disease hospital on city property near Bayview Asylum. The board of estimates has allowed him $1,000 to commence the medical inspection of schools.

Surgeons for Confederate Veterans.—The Isaac R. Trimble Camp, No. 1025, United Confederate Veterans, elected the following medical officers: Surgeon, Dr. John H. Grimes; assistant surgeons, Drs. Alex. L. Bell, James G. Wiltshire and Louis W. Knight.

Deaths of the Week.—For the week ended January 21, there were only 167 deaths reported, a singularly low mortality. This was a rate of 15.22 per 1,000, or, according to color, for the white, 12; colored, 32.65. Pneumonia and consumption led, each causing 27 deaths.

Vital Statistics.—According to the annual report of the Health Commissioner for 1904, there were 10,818 deaths; males 5,654, females 5,164. The death rate per 1,000 was 19.26 (white, 17.02; colored, 31.44). There were 8,599 births reported—males, 4,444; females, 4,155. The principal causes of death were pulmonary tuberculosis, 1,349; pneumonia, 1,121; heart disease, 815; Bright's disease, 749; diarrhea, 743; cancer, 450, and apoplexy, 381.

Association Election.—At the annual meeting of the Baltimore Medical and Surgical Association, January 9, the following were elected to office: President, Dr. C. Urban Smith; vice presidents, Drs. Charles O'Donovan and Nathan Winslow; secretary, Dr. Eugene L. Crutchfield; treasurer, Dr. W. B. Perry; executive committee, Drs. James M. Craighill, Arthur Hebb, and D. Streett; and committee of honor, Drs. John Neff, John W. Linthicum, and John I. Pennington. After the election of officers a banquet was served.

MICHIGAN.

Anti-Spitting Law in Lansing.—The first conviction under the new anti-spitting ordinance in Lansing occurred January 17, when Perry Boughner was found guilty of spitting on a sidewalk.

Prescott Critically Ill.—It is reported that the venerable Prof. Albert B. Prescott, dean of the school of pharmacy and senior professor in the University of Michigan, is critically ill with pneumonia.

Cushny Goes to London.—It is announced that Dr. Arthur R. Cushny, professor of materia medica and therapeutics in the University of Michigan, has resigned to accept a similar chair in the University of London, England.

Academy Elects Officers.—The annual meeting of the Kalamazoo Academy of Medicine was held January 12, at which the following officers were elected: President, Dr. John Bosman, Kalamazoo; vice-presidents, Drs. Wilbur F. Hoyt, Pawpaw, and Edward P. Wilbur, Kalamazoo; secretary-treasurer, Dr. Walter den Bleyker, Kalamazoo; librarian, Dr. Edwin H. Van Deusen, Kalamazoo, and censors, Drs. Harris B. Osborne and Ralph E. Balch, Kalamazoo.

NEW YORK.

Site for State Hospital.—The State Lunacy Commission has accepted the Baker site for a new state insane hospital in Washington County.

County Society Honors Dead.—The eighty-fourth annual meeting of the Erie County Medical Society was held January 10. Dr. William C. Krauss, president, was in the chair. Memorials on the following deceased members were read, as follows: Dr. J. G. Thompson, by Dr. N. W. Wilson; Dr. H. S. Ingraham, by Dr. W. C. Phelps; Dr. R. S. Meyers, by Dr. Henry Lapp; Dr. S. Lynde, by Dr. G. W. Wende, and Dr. A. T. O'Hara, by Dr. Edward Clark. The board of censors presented a caustic report on the medical criminals—abortionists, fakers, mediums, and advertisers—of Erie County.

New York City.

Personal.—Dr. Livingston Farrand, professor of anthropology at Columbia University, has been named as head of the National Association for the Study and Prevention of Tuberculosis.

Decrease in the Death Rate.—Reports show that there has been a decrease in the death rate in this city of 2.8 per cent. as compared with the same week of last year. The conditions throughout the city are better than they were at this time a year ago.

Change in Bulkley Lectures.—Dr. Bulkley's usual clinical lecture at the New York Skin and Cancer Hospital will be replaced February 1 by a lecture by Dr. Boleslaw Lapowski on the "Treatment of Syphilis," and on February 8 by a lecture by Dr. Charles Mallory Williams on the "Treatment of Acne."

New Ophthalmic Institute Site.—At the annual meeting of the New York Ophthalmic and Aural Institute it was announced that the trustees and their friends had collected $200,000 toward the erection of a new building and that a site had been purchased at 64th Street and Central Park. Ground will not be broken until $350,000 has been raised.

Orthopedic Hospital.—The report of this institution presented at the annual meeting shows a prosperous condition. A standing deficit of $22,000 was wiped out, although running expenses were $7,000 greater than the income. During the year 4,017 cases were treated, and a country branch and industrial school was opened at White Plains for convalescents.

The Work of the Milk Commission.—The milk commission of the Medical Society of the County of New York has distributed a notice to its members, calling attention to the fact that, while it has supervision of only that portion of a dealer's milk which carries its certification, it does not intend to allow a dealer known to have adulterated milk to sell certified milk.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 14, 338 cases of tuberculosis, with 160 deaths; 307 cases of diphtheria, with 43 deaths; 281 cases of scarlet fever, with 17 deaths; 202 cases of varicella; 189 cases of measles, with 6 deaths; 56 cases of typhoid fever, with 9 deaths, and 26 deaths from cerebrospinal meningitis.

Memorial to Dr. Skene.—The sum of $5,000 has been given anonymously to the Kings County Medical Society for the founding of the Alexander J. C. Skene Memorial Fund. Dr. Skene was a former president of the society. The conditions of the fund are that the income from it shall be devoted to the purchase of books and journals relating to Dr. Skene's specialty—obstetrics and gynecology.

NORTH DAKOTA.

Appointments.—Dr. Edward M. Darrow, Fargo, as member Cass County Board of Insanity.——Dr. George A. Carpenter, Fargo, as superintendent of Cass County Board of Health.——Dr. John D. Henning, Fargo, as physician of Cass County.——Drs. F. B. Strauss, Glen Ullin, and George A. Stark, Mandan, physicians for Morton County.

Proposed State Laboratories.—Dr. J. D. Taylor of Grand Forks introduced a bill in the legislature providing "for the creating of a state bacteriologic and pathologic laboratory, for the control of such laboratory, and duties of the director, for the appointment of a director of such laboratory who shall be ex-officio state bacteriologist, and for an appropriation for the support of such a laboratory."

OHIO.

New Hospital Open.—The new hospital at East Liverpool was informally opened, January 2. It has been built wholly by private subscription.

Springfield Hospital Ready.—On December 29 the new City Hospital, erected at a cost of about $100,000, was formally opened. The staff has elected the following officers: Dr. John M. Buckingham, president; Dr. Bennetta D. Titlow, vice-president, and Dr. Jay D. Thomas, secretary and treasurer.

Society Election.—At the annual meeting of the Fairfield County Medical Society the following officers were elected: President, Dr. W. Stanley Samson, Lancaster; vice-president, Dr. George P. Haddell, Stoutsville; secretary, Dr. Henry R. Plumb, Lancaster; treasurer, Dr. John H. Axline, Lancaster, and censor, Dr. T. R. Mason, Sugar Grove.

Gift of Hospital.—Mr. J. F. Pocock has presented to Massillon a general hospital to be controlled by the Massillon Hospital Association, with a capital stock of $50,000. He has given a lot on which he will have erected suitable fireproof buildings, thoroughly equipped and furnished, all of which he will turn over to the city as a gift.

Personal.—Dr. August Schumacher, Hamilton, has succeeded Dr. Thomas D. Sharkey as coroner of Butler County.——Dr. Dan Millikin has been elected president of the Board of Education of Hamilton.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and taken to the state hospital, Newburg.——Dr. Robert C. Chamberlain, Tiffin, has been appointed physician to Seneca County Infirmary.——Dr. Josiah Medbery, Columbus, has recovered from his recent operation and has resumed his work.

Cincinnati.

Deficit Does Not Alarm.—The deficit at Christ's Hospital for the year just ended will be about $1,600. Inasmuch as the hospital has used $15,000 for its charity work alone, this deficit is not regarded with alarm.

Hospital Directors Organize.—The Board of Medical Directors of the Cincinnati City Hospital has organized and elected Dr. Asa B. Isham, president; Dr. Louis Schwab, vice-president, and Dr. Byron Stanton, secretary.

Corpses Transported in Passenger Coaches.—The transportation of corpses in the smoking compartments of passenger cars of the Rapid Railway is to be fought by the newly-created Kennedy Heights Board of Health. Communications have been opened with the State Board of Health to see if the company has the right to carry corpses in the regular passenger cars.

Personal.—Dr. Otis L. Cameron has been appointed coroner, and Dr. Oliver L. Coe, deputy coroner, of Hamilton County.——Dr. Stephen E. Cone, secretary of the Academy of Medicine, has resigned, and Dr. Samuel Iglauer has been appointed temporary secretary.——Dr. James W. Miller has been appointed district physician vice Dr. William Muhlberg, resigned. He was appointed examining physician January 14, and Dr. Henry W. Albers appointed district physician in his stead.——Dr. Thaddeus A. Keamy was presented with a loving-cup on January 12 by the Beta Theta Pi fraternity.——Dr. Arthur Vos, house physician to the Cincinnati Hospital, is suffering from septicemia.

PENNSYLVANIA.

Erie County Medical Society, at its annual meeting in Erie, elected the following officers: President, Dr. George B. Kalb; vice-president, Dr. Thomas Purcell; secretary, Dr. Adella B. Woods; treasurer, Dr. George S. Ray; library committee, Drs. David N. Dennis, James H. Montgomery and Ira J. Dunn; censors, Drs. James E. Silliman, Frank A. Walsh and Ira J. Dunn, and reporter, Dr. Guy C. Boughton.

Hospitals at Steel Mills.—The great increase in accidents in the mills of the United States Steel Corporation have led the officials of the company to take steps toward the erection of two emergency hospitals in their mills at Donora. Previously all men injured had to be conveyed to the hospitals of Pittsburg or McKeesport before their injuries could be properly treated and their true character determined.

Mine Accidents.—From official information of the mine inspectors of the four anthracite districts in the Wyoming Valley it is shown that in all 537 men and boys were killed or injured during 1904. There were 199 fatal and 338 non-fatal accidents in the districts, leaving 109 women as widows and 212 children, orphans. In the tenth anthracite district an official report shows there were 37 fatal and 54 non-fatal accidents, an increase of 85 per cent. over the preceding year. These accidents left 19 widows and 44 orphans.

Society's Annual Meeting.—The Northampton County Medical Society held its fifty-sixth annual meeting in Easton, January 20. The following officers were elected: President, Dr. George N. Schwartz, Pen Argyl; vice-presidents, Drs. Arthur D. Reagan, Easton and Harry C. Pohl, Nazareth; secretary, Dr. James J. Quincy, Easton; corresponding secretary, Dr. John E. Fretz, Easton; treasurer, Dr. Joseph S. Hunt, Easton; reporter, Dr. James J. Quincy, Easton; censors, Drs. Edgar M. Green, W. H. Duler and H. J. Lacier, and delegate to state society, Dr. Henry D. Michler, Easton.

Care of Tuberculous Sick.—The Philadelphia County Medical Society, at its meeting January 18, adopted the following resolutions:

> WHEREAS, The state of Pennsylvania has not up to the present time provided adequate accommodation for the care and treatment of its tuberculous sick; and
>
> WHEREAS, The plans now in projection throughout the state, even when successfully executed, will provide for but a mere fraction of the number of those who need skillful care and medical direction, both for the saving of their lives and the protection of the community; and
>
> WHEREAS, Experience has shown that by properly directed open-air treatment the great majority of cases of incipient tuberculosis can be permanently cured, and that a large percentage of the daily new infections can be avoided if such patients are removed from close association with others not yet infected; be it
>
> *Resolved*, That the Philadelphia County Medical Society does hereby petition the legislature of the state of Pennsylvania:
>
> 1. For the appropriation of a certain sum of money, not less than $500,000, to be devoted to the establishment of camps, sanatoria, hospitals and dispensaries, for the tuberculous sick of the commonwealth of Pennsylvania.
> 2. For the setting aside of such portions of the State Forestry Reserve as may be recommended with a view to accommodating camps and buildings, such as may be deemed necessary for the care of tuberculous patients, and for their scientific study and treatment; further be it
>
> *Resolved*, That the president of this society be authorized and instructed to appoint a committee of three from the membership of the society to co-operate with similar committees that may be appointed from other societies in urging on the legislature the need of state aid in the suppression of tuberculosis.

Philadelphia.

Women's Hospital Report.—During last year there were 1,217 patients admitted, making a total of 1,281 patients treated. There were 20,000 cases treated in the clinics and 201 births in the maternity.

Jewish Hospital Staff.—The following physicians were elected to the staff of the hospital: Dr. Charles P. Noble, consulting surgeon; Dr. Lawrence F. Flick, consulting surgeon; Dr. William H. Randle, obstetrician; Dr. Joseph B. Potsdamer, pediatrist, and Dr. Sidney L. Feldstein, radiologist.

Talk on Consumption.—Efforts are being made by the Henry Phipps Institute to educate the textile workers of the city as to the danger of spreading consumption and the means of combating its propagation. A series of lectures will be delivered to the textile workers of Kensington by members of the staff of the Henry Phipps Institute on the home treatment of the disease, beginning January 30.

Chicagoan in Philadelphia.—Dr. Robert B. Preble, professor of medicine in the Northwestern University Medical School, will address the students of the Jefferson Medical College in the college building, February 1, under the auspices of the H. A. Hare Medical Society, on "The Extra-Pulmonary Localization of the Pneumococcus." He will be tendered a reception by the society immediately after the address.

Clinical Assistants Organize.—On January 4 the Association of Clinical Assistants of Wills Hospital was organized, with the object of bringing together all who have served in this capacity in the hospital for the informal discussion of ophthalmic subjects. Dr. S. H. Brown was elected secretary-treasurer, and an executive committee was elected, consisting of Drs. John T. Krall, Josephine P. U. Hildrup and S. H. Brown.

Health Report.—The total number of deaths reported for the week was 519, an increase of 19 over the preceding week and a decrease of 99 from those of the corresponding week of last year. Eighty-three deaths were due to acute inflammation of the respiratory tract, 12 to typhoid fever, 62 to pulmonary tuberculosis, 23 to cancer, 25 to apoplexy, 51 to heart disease, 11 to enteritis and 37 to Bright's disease. There were 236 cases of contagious disease reported, with 24 deaths, as compared with 222 cases and 24 deaths for the previous week. No smallpox was reported.

Oncologic Hospital Open.—The American Oncologic Hospital, the first institution in the country to be devoted exclusively to the study and treatment of cancer, was formally opened January 4. Dr. G. Betton Massey made the opening address. Both charity and pay patients will be admitted and it is the purpose of the staff to employ all methods of treatment that promise to be of service in this class of cases, including electrochemical sterilization and radiotherapy. Dr. Boardman Reed is attending physician, and Drs. Addinell Hewson, G. Betton Massey and Howard R. Swayne are the attending surgeons.

Medico-Chirurgical Alumni Election.—The alumni association of the Medico-Chirurgical College has elected the following officers: President, Dr. William L. Shindle; secretary, Dr. Stilwell C. Burns; treasurer, Dr. Emanuel S. Gans, and executive committee, Drs. W. Easterly Ashton, Arthur E. Blackburn. Arthur C. Buckley, L. Napoleon Boston, Joseph A. Cramp, John W. Croskey, Morton P. Dickeson, John H. Egan. L. Webster Fox, Andrew Godfrey, Charles H. Gubbins, S. Leon Gans, A. Wiese Hammer, W. Frank Haehnlen, Harry Lowenbury, Francis Lemmer, John A. McGlinn, John A. McKenna, George W. Pfromm, Joseph V. C. Roberts, Herbert J. Smith, John W. Shoemaker, Mitchell P. Warmuth, John W. Wilkins and J. L. Widmyer.

Bequests and Donations.—By the will of Selina Walker the Jewish Hospital Association receives $7,286.73, and the Jewish Maternity Hospital, $2,428.90.——By the will of the late Francis T. Fassitt $5,000 is bequeathed to the Children's Hospital for the establishment of a free bed, to be known as the Anne Avoir Fassitt bed.——The will of Adolph Heinman bequeaths $500 to the Jewish Hospital and $350 to the Jewish Maternity.——By the will of William McFatrick, on the death of his wife and sister, the remainder of the estate, valued at $62,800, will be divided among the Presbyterian, Episcopal, Jewish, Methodist and Howard hospitals for the establishment of free beds. The will also requests the widow to donate an amount sufficient to establish a free bed in St. Agnes' Hospital.——By the will of Margaret Sullivan $200 is donated to St. John's Orphan Asylum.——Benjamin Tousey of Syracuse, N. Y., has donated $5,000 to the University of Pennsylvania Hospital to endow a free bed for the use of employes of the Central News Company.

GENERAL.

Government Laboratory Building in Use.—A part of the new building for the Bureau of Government Laboratories, Manila, P. I., has been completed, so that a number of the branches have moved into their departments.

Panama Service Examination.—The examinations by the United States Civil Service Commission were held January 18, as announced in THE JOURNAL, Dec. 17, 1904, to select eligibles for service under the Isthmian Canal Commission. The attendance of physicians was not very large in many cities. In St. Louis there were twelve.

Health Report of the Philippine Islands.—The report of the Board of Health of the Philippine Islands and the City of Manila for September, 1904, states that 797 births were registered during the month. This is the largest number ever registered in any one month and gives a birth rate of 44.11 per thousand. During September there were 1,146 deaths in the city of Manila; of these 1,064 were residents and 82 transients. Fifty-four per cent. of all deaths occurred in children under one year of age, the number of deaths from infantile convulsions being 367. There were 5 cases of smallpox, with 2 deaths. One death from bubonic plague was registered. There were 96 deaths from tuberculosis and the same number from chronic diarrhea and enteritis.

CANADA.

Ontario Medical Association.—The annual meeting of this association will be held in Toronto, June 6-8, 1905, under the presidency of Dr. William Burt of Paris, the secretary being Dr. Charles P. Lusk, Toronto. Mr. I. H. Cameron is chairman of the committee of arrangements, and Dr. Alexander Primrose is chairman of the committee on papers and business. Dr. Ochsner of Chicago will deliver the address in surgery.

Northwest Territory Laboratory.—The government of the northwest territories of Canada is establishing a new bacteriologic and pathologic laboratory and has appointed Dr. George Charlton, formerly of the McGill University pathologic department, chief of the laboratory. Dr. Charlton will at first investigate swamp fever in horses, which die very rapidly once they contract this disease. Later he will investigate diphtheria and typhoid epidemics.

Canadian Medical Association.—The thirty-eighth annual meeting of the Canadian Medical Association will be held at Halifax, Nova Scotia, Aug. 22-25, 1905. Dr. John Stewart, Halifax, is the president, and Dr. George Elliott, Toronto, general secretary. The address in surgery will be delivered by Mr. Francis Caird of the Royal Infirmary, Edinburgh, while

Dr. Howard Kelly, Baltimore, will deliver the address in gynecology. Dr. J. W. Stirling, Montreal, will deliver an address in opththalmology, and there will be in addition addresses in medicine and in pathology. Dr. A. J. McCosh, New York, will also be asked to contribute a paper. The Medical Society of Nova Scotia will act as host to the Canadian Medical Association, and, therefore, will not hold its regular annual meeting.

Physicians Scarce in Newfoundland.—In the small settlements along the remote stretches of the Newfoundland coast there is lack of medical attendance. It is not uncommon for a physician to travel 100 miles by boat—there are no roads—to attend a patient. In many places the duties ordinarily fulfilled by a physician are performed by some man or woman who has picked up a little medical knowledge. The result in increased mortality statistics may be imagined. The government of Newfoundland is endeavoring to remedy this by appointing physicians or surgeons to the magistracies in the different townships. In the sparsely settled districts an allowance of $500 a year is made to a medical man who will settle there, on condition that he will undertake magisterial duties in addition to his professional ones. The former are not very onerous, usually having to do with fishery disputes, settlements and the like, for serious crime is unknown, and the other representative of the law is what is called a local constable, a person who acts for $2 a week in the capacity of process server and census enumerator.

FOREIGN.

Plague in Russia.—Plague has appeared in one of the Ural districts and has made rapid progress among the Kirghiz and cossack population. The epidemic of cholera in the Caucasus region has almost died out.

German Red Cross Mission to the Seat of War.—Professor Henle of Breslau is in charge of a Red Cross expedition from Germany to Japan. It was expected to sail from Genoa, January 15. Dr. Fittig and a trained nurse accompany the expedition. The rest of the personnel is to be supplied by the Japanese government.

Public Care for Tuberculous Children.—The new sanatoria in Germany are being constructed with a view to having a department for tuberculous children. The sanatorium near Hagen has made arrangements to board children under 14 during the winter months when lung trouble is suspected. The city of Charlottenburg has found the "school in the woods" such a success for weakly children that a second one is now planned. They are in the country, but close to the city limits, accessible by trolley.

The Madeira Sanatoria.—The first one of the sanatoria erected on the Madeira islands by German private enterprise, under the leadership of the Prince von Hohenlohe, has been formally inaugurated. It is at an elevation of nearly 1,000 feet, and has accommodations for sixty guests. It is planned to have accessory stations at various elevations higher up on the mountains, to determine the most favorable altitude for individual cases. The particulars of this new health resort were mentioned in the news columns of The Journal of April 2, 1904, page 903. Pannwitz, Rumpf, B. Fränkel, Wolf and Römer are among the physicians on the board of directors.

Progress of Cremation.—The number of cremations in France during 1904 was only 350, almost all at Paris. The crematory at Rheims has been ready for operation for more than two years, but not a single application has been made for cremation. In Germany the record of cremations for 1903 was less than 1,100, while in England the number was only 500. In Italy there were 400 cremations, and about the same number in Sweden and 300 in the Argentine Republic. The *Semaine Médicale* comments on these figures that cremation is not making much progress elsewhere than in the United States and in the Orient, where it has always been frequently employed. It cites at 4,000 to 5,000 the number of cremations in this country.

Report on Ankylostoma.—The committee appointed by the British Association for the Advancement of Science has made a preliminary report concerning ankylostoma, which is thus summarized by *Science:* There are many channels by which ankylostoma might be introduced into British coal mines. The conditions found underground in these mines are such that the worm would, in many cases at any rate, probably become firmly established. In view of the expense and difficulty of eradicating the worm from any mine in which it has become established it is of the greatest importance that preventive measures should be undertaken without delay. Complete eradication does not yet appear ever to have been accomplished. The necessary prevention is best accomplished by the provision of proper sanitary accommodation in the main roads underground and at the pit's mouth, by regulations to prevent pollution of the pit by human feces, and by the establishment of a limited quarantine system for work people from infected areas, with compulsory notification of cases to the home office.

School Contagion of Infectious Diseases.—M. Cohn is medical school inspector at Charlottenburg, and he has been studying the statistics of the four largest cities of Germany during the last ten years to learn whether infectious diseases are more prevalent or less so during the school vacations. If they are less prevalent at this time, it would be an argument in favor of closing the schools at the outbreak of an epidemic. He finds that the vacations do not seem to have any effect on the prevalence of diphtheria and scarlet fever. Measles, on the other hand, drops abruptly so soon as the schools close for a vacation. He explains this by the fact that scarlet fever and diphtheria are not so contagious in the early stages. The child is usually so sick that it is kept at home before the really contagious stage is reached. In measles the disease is highly contagious from the start, and he recommends to close the school room at once whenever measles is prevalent among the scholars. In the discussion which followed his address on the subject at the meeting of the German Public Health Society, December 6, the leading medical authorities reiterated that a child who has had scarlet fever should be kept at home for six weeks at least if transmission by way of the school is to be avoided.

Approaching International Anti-Tuberculosis Congress.—The French prime minister has asked for an appropriation of $20,000 for the approaching International Anti-tuberculosis Congress to be held at Paris in October of this year. The committee of organization comprises Casimir-Périer, ex-president of the republic, and L. Bourgeois, former prime minister, with Berthelot as acting president of the congress, and Chauveau, Herand and Brouardel as vice-presidents. The chairman of the section on medical pathology will be Bouchard, while Lannelongue will be chairman of the section of surgical pathology, Grancher of children's diseases, and Landouzy of the section for care and aid for the adult tuberculous. M. Letulle has been appointed secretary general of the congress and P. Masson, treasurer. Among the addresses already promised are some on the "Treatment of Lupus," "Early Diagnosis of Tuberculosis," "Comparative Study of Various Tuberculoses," "Ileocecal Tuberculosis," "Operative Treatment of Tuberculosis of Meninges and Brain," "Etiologic Factors,." and studies of sanatoria, etc. June 30, 1905, is the latest limit for the reception of communications. A tuberculosis exposition is planned in association with the congress. The exhibition will be arranged in two sections, a scientific and an industrial section.

Legislation Against Irregular Practices in Baden.—The bill to restrict quack practices, introduced into the Baden legislature, was described in The Journal of March 19, 1904. As finally adopted, the drastic measures first proposed were somewhat modified, but even under these circumstances the measure is regarded as a great advance in the protection of the public against irregular practices. Dr. Neustätter of Munich describes in the *Münchener med. Wochenschrift* of December 20 the history of the bill on its way through the upper and lower houses as extremely characteristic. The representatives of the people in congress assembled always seem to shrink with infinite dread from inflicting the slightest harm on the irregular practitioner. This is easily understood, he remarks, from the lay standpoint. It is impossible for laymen to believe that any one could be so dastardly as to play with the lives and the health of his fellow-men. This idea is remarkably firmly rooted in the popular mind. It is not shaken even by the testimony of facts which teach the contrary. The bill forbids extravagant statements in advertisements and "absent treatment." The latter clause is the first restriction of the kind, he adds, adopted by any state. Advertisement of aphrodisiac and anti-conception measures is likewise prohibited, as is also the case in Hamburg and Berlin. It is forbidden to advertise remedies which can not be sold without a physician's prescription. The bill is original in several points and not a mere imitation of what other states have adopted. It was prepared by the Carlsruhe board of health and its chairman, the mayor, with the co-operation of the local physicians.

Health Statistics of Malta.—The *British Medical Journal* states that a comprehensive scheme for the drainage of the large towns and principal villages in the two islands has been drawn up, and the work is being carried out as rapidly as the resources of the government will permit. The drainage of the three cities is now practically completed, and that of the large suburbs of Sliema and St. Julian's is well advanced. The population on March 31 last was estimated at 197,070, and the number of births registered during the year was 7,173, representing a general birth rate ot 37.69 per mille. The general state of public health is recorded as "good," though it is stated that the percentage of deaths among children under 5 years of age was 51.8, and that the general death rate was 24.45 per mille. Zymotic diseases accounted for 288 deaths, or 5.7 per cent. of the total number of deaths. Two outbreaks of smallpox occurred, the disease having been imported in the one case from Tunis and in the other from Sicily, but in neither did it assume serious importance, though out of the 50 cases recorded 10 died. The mortality from diphtheria seems to be exceedingly high, the disease proving fatal in 57 cases out of the 124 attacked. No statistics, unfortunately, are given with regard to Malta fever, it being merely recorded that there were 706 cases of "fevers" and 99 deaths. The climatic conditions of the year were peculiar, the summer months being unusually cool, and the rainfall for the year reaching a total of only 14.695 inches, some 10 inches below that of the preceding record.

The Suit Against the Gelsenkirchen Waterworks.—The famous suit brought by the state against the directors of the waterworks supplying a district in Germany in which an epidemic of typhoid fever broke out, has ended in the condemnation of the defendants to a fine and the costs of the suit, which are in the neighborhood of $25,000. The prosecuting attorney (*Staatsanwalt*), in closing his address, remarked that the twenty-two days during which the suit had lasted to date had accomplished more in the way of promoting public health and sanitation than twenty-two years under ordinary circumstances. There were probably 5,000 cases of typhoid during the epidemic, with 9 per cent. mortality in the 3,235 officially reported cases. It was established that nearly all these cases occurred in a district in which the water supply was clandestinely augmented during dry seasons by a pipe bringing unfiltered river water into the supply. This pipe was opened usually the last three days of the week during the summer, but was closed up at other times. When the epidemic broke out and the existence of the side pipe became known to the authorities, it was walled up and the entire pipe system of the waterworks, 300 kilometers in length (about 186 miles), was disinfected with sulphuric acid. About 15,000 quarts of 60 per cent. sulphuric acid were poured into each of the reservoirs until the desired concentration of 1 per 1,000 was reached. The entire faucet system was tied up for eight or nine hours. This was done September 29, and scarcely a single new case developed after October, the epidemic subsiding as abruptly as it had begun early in September. The indictment against the directors of the waterworks was at first that they had induced the epidemic by willful use of unfiltered river water in the side pipe mentioned above. The authorities found that they were unable to prove this indictment, as a leak in the main pipe had occurred in July, and as there was a possibility of other sources of contamination, consequently the indictment was changed to an accusation of the adulteration or falsification of food, and under this caption the directors were condemned as stated above to fines of $300 to $375, with the costs of the suit, which amounted to about $25,000. The expert testimony in the case is reported in full in the *Münchener med. Wochenschrift*, Dec. 20, 1904.

LONDON LETTER.

Plague Inoculation in India.

The rapid spread of plague in the Punjab during the cold weather of 1901-2 led the government of India to make provision for the inoculation of no fewer than 7,000,000 persons during the following winter by the combined efforts of all the available medical establishments and of 37 doctors especially engaged in England. But when the scheme had been in operation only four or five weeks, it was brought to a summary close by a deplorable catastrophe, which has been previously referred to in The Journal. On Nov. 6, 1902, nineteen persons who had been inoculated at a certain village from a single bottle of the Haffkine serum were found to be suffering from tetanus and all subsequently died. The chief justice of Bombay and two medical officers of distinction were appointed as a commission of inquiry. After prolonged delay, due to the submission of the report of the commission for examination and to further experiment at the Lister Institute in London, an official report has been issued. It states that in September, 1902, the standard method of manufacturing the Haffkine serum was changed by the director of the Plague Institute on his own authority, with the object of expediting the process and thus meeting the enormous demand made by the Punjab government. The change involved the omission of a small proportion of the carbolic acid, which had up till then been added to the original fluid as a precaution against contamination. The commission found that the tetanus bacillus was introduced before the bottle was opened, and thought that this occurred owing either to insufficient sterilization or to the process of filling the bottle from a larger flask having been performed with defective precautions. They expressed the opinion that carbolic acid was a valuable agent in restraining the growth of the tetanus bacillus when added to the plague serum and that its omission was a grave mistake. Experiments undertaken in India by two independent investigators confirm this view. The conclusions of the Lister Institute also generally confirm those of the commission. With a view to re-establish public confidence in the safety of the serum, arrangements have been made for a series of public demonstrations of the process of manufacture by the director of the Plague Research Laboratory in connection with the Health Exhibition organized by the Bombay Sanitary Association.

Physical Degeneration.

The question of national physical degeneration has been much discussed recently, both in the lay and in the medical press. Alarmist views stating that the national physique is undergoing serious degeneration have been put forward, but have not been proved. They seem to have been largely due to the journalism of the day, which finds sensationalism more profitable than truth. However, it is perfectly true that the physique of a large portion of the inhabitants of towns is far from satisfactory. At a meeting of the Society of Medical Officers of Health, Sir Lauder Brunton read an important paper on "Physical Degeneration." He pointed out that 34.6 per cent. of recruits for the army are rejected on inspection, and 3 per cent. more are either rejected within three months or discharged as invalids before completing two years' service. He advocated the proposal that school children should be periodically inspected. He discussed the part which health officers might play in the work, suggesting that they should see that proper accommodation is provided for play in good weather and for exercise in bad weather; that they should advise on the problems of feeding school children, and should see that the schools become great object lessons in ventilation and dietetics. He advocated school kitchens, and anticipated that by the agency of lady visitors to the homes the health officers could work to great advantage and could also convey instruction as to the feeding of infants. Instead of the municipalization of milk depots, he recommended that the large dairy companies should be obliged, under a heavy penalty, to supply milk which would conform with the requirements laid down by the municipalities. The country must be made more attractive in order to draw people from crowded towns. Local authorities should exercise their powers to treat overcrowded houses as nuisances.

The Jews and Infantile Mortality.

In an address on the sanitary condition of Manchester, Dr. Rhodes pointed out that though the general death rate had fallen considerably, the infantile mortality was almost as high as it was fifty years ago. It is comparatively low in the Jews' quarter, where the mothers stay at home and look after their children. The publication of this address was followed by an interesting letter to the *Manchester Guardian*, by "A Jewess," who stated that it had been shown by several investigations that Jewish children are superior to gentile in stamina and physique. This she attributed primarily to the fact that Jewish mothers do not work in factories, for it is considered a disgrace for a man to let "the mother of his children go to the factory, working above her strength and depriving her children, before their birth and after it, of the care which is their right." In cleanliness she did not consider that the lower class Jews, many of whom came from the ghettos of Russia and Poland, had any superiority, but they had the advantage of freedom from alcoholism.

Plague and Other Infectious Diseases in Rats.

The annual report of the medical officer of the local government board contains an important paper by Dr. Klein on this subject. He made a carefully conceived series of experiments to ascertain the channels by which plague is conveyed from rat to rat. His experiments do not support the generally accepted view that the disease is largely conveyed by fleas. He could not find, as Dr. Tidswell did, that an emulsion of fleas taken from a rat dead of plague is capable of conveying the disease to other rats According to Dr. Klein, fleas may occasionally convey plague from rat to rat, but this is not the common method of conveyance. On numerous occasions he kept rats in the same cage for some time in order that their initial fights might cease, and then inoculated one with plague from which it died, but none of the others succumbed, and their susceptibility was subsequently proved by inoculation. Dr. Klein thinks that one of the most common causes of infection from rat to rat is by means of the wounds and abrasions which are to be found on nearly all rats in the wild state. Such abrasions may easily become inoculated by articles soiled by the excreta of rats ill with plague. He thinks that rats may also be inoculated owing to their fighting propensities and to the fact that when ill with plague they are extremely irritable. In the case of a rat afflicted with pneumonic plague, the oral mucus would thus be a ready means of infection. An interesting part of the report is that which relates to disease other than plague in rats Dr. Klein refers to the disease caused among rats by the Danysz bacillus, by means of which it was sought to destroy the rats in the Paris sewers This bacillus is easily distinguished from that of plague In the case of the SS George Royle, on board of which many dead rats were found while it was being unloaded at Bristol, the case was complicated by the fact that the vessel came from Smyrna, which was infected with plague. Much alarm was naturally caused, but it was eventually proved by Dr. Klein that the bacillus which presumably had caused the death of the rats was not that of plague, but a bacillus which he termed *Bacillus bristolense*. The report is valuable as indicating caution in concluding that a fatal disease among rats on board ship is necessarily due to plague.

Queries and Minor Notes.

Anonymous Communications will not be noticed Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed

TESTS FOR ACETONE AND INDICAN

Mt Vernon, N. Y, Jan 17, 1905

To the Editor:—In your issue of January 7, page 53, reviewing Croftan's clinical urinology, you refer to Penzoldt's test for acetone and Strauss' method for quantitative indican determination Will you kindly publish those methods and give reference to original papers? F

Answer—The indigo test of Penzoldt depends on the transformation of orthonitrobenzaldehyd into indigo blue A few crystals of orthonitrobenzaldehyd are dissolved in hot water and, after cooling, a little of the fluid to be tested and some sodium hydrate solution are added If acetone be present the fluid turns yellow, then green, and then blue (indigo formation) If desired, the indigo can be shaken out with chloroform and further tests for its identity made The test can be applied directly to the urine, and will yield a positive reaction if acetone be present in abundance, but for the detection of small amounts of acetone it is necessary to distill off 30 to 40 c c from 250 c c of urine, using a cooler The most of the acetone passes over in the first 10 to 20 c c of the distillate, and the test is applied to the distillate Penzoldt's test is very reliable and free from objection Many prefer it to Legal's test Penzoldt's article will be found in the *Deutsches Archiv f Klin Med*, vol xxxiv (1883), p 132 Recent studies by Ellram and also by von Melckebecke confirm the reliability of the test Strauss' method for the determination of indican, in a rough way, quantitatively, for clinical purposes, is as follows Twenty c c of urine are mixed with 5 c c of a 20 per cent solution of acetate of lead Ten c c of the filtrate (equal to 8 c c urine), are placed in a separating funnel, which is closed below by a glass stopcock and above with a glass stopper; it is graduated to 5, 10, 15, 20 and 25 c c To the 10 c c of the filtrate are added 10 c c of Obermayer's reagent (concentrated hydrochloric acid containing 2 grams of perchlorid of iron per liter) and 5 c c chloroform; the tube is shaken gently several times, allowed to stand for some time and shaken again The chloroform solution is then drawn off, more chloroform placed in the separating funnel, and the process repeated until the chloroform extracts no more color After this 2 c c. of the combined chloroform extracts are placed in a test tube of the same size and form as the test tube containing a control solution of indigotin in chloroform (1 mgr. in 1,000 c cm). The colored chloroform solution is diluted with pure chloroform until the color is the same as that of the control solution. The quantity of indican present is easily calculated If x is the amount of chloroform in cubic centimeters used for extraction, and y the amount used for dilution, then $\frac{1}{2}xy$ would give the chloroform value from which the amount of indigo can be calculated, it being remembered that the test solution contains 0 001 gm of chemically pure indigotin in 1,000 ccm and that 8 ccm of urine was used for the reaction. The control test tube of the standard solution should be kept in a dark cupboard Strauss has published his method in the *Deutsche med Wochenschrift*, vol. xxix (1902), p 299 A somewhat similar colorimetric method has been introduced by J. Bouma (*Deutsche med. Wochenschrift*, vol xxviii, 1902, p 705). Bouma uses a so called indicanurometer which consists of eleven test tubes of the same size and thickness arranged in a row Six of these contain a solution of indigo red (of urinary origin) in chloroform, the strength varying so as to correspond to 5, 10, 15, 20, 30 and 40 mg of indigo per liter of urine The tubes are hermetically sealed and serve as control solutions They must be kept in the dark To make Bouma's test, 10 ccm. of urine are precipitated with 2 ccm of lead acetate solution One places 5 5 ccm of the filtrate (=5 ccm urine) in a test tube and adds 10 ccm of isatin hydrochloric acid solution (20 mg. purest isatin [Merck] dissolved in 1 liter chemically pure, iron-free, concentrated hydrochloric acid). The tube is heated to boiling for some seconds, then cooled and the contents extracted by shaking with 5 ccm chloroform This chloroform extract is compared with the six control solutions and the quantity thus immediately determined It must be emphasized that these tests give only approximately accurate results, though they are perhaps sufficient for clinical work More accurate methods, but much more difficult of application, are those of Wang (*Zeitschr f physiol Chemie*, vol xxv, 1898, p 406), and of J. Bouma (*Zeitschr. f physiol Chemie*, vol xxxii, 1901, p 82).

ANTIQUATED TEACHING IN MEDICAL COLLEGES

————, ——, Jan 18, 1905

To the Editor:—Will you kindly suggest to me some way out of the following difficulty satisfactory both to the students and to the dignity of the professor involved? A colleague of mine is the professor of two branches in the medical curriculum of a certain college He teaches one branch to second year men, the other to fourth year men The requirements of admission to the school have increased in the last few years to such a degree that many of the men who take their second year under him are better prepared in this particular subject than he is Mutterings have occurred before but I accidentally learned that the men were agitating a petition to have this particular man teach them the subject as it is to day and not as it was ten years ago The professor involved is the most influential member of this unendowed faculty and personally a warm hearted, genial gentleman, as well as a good friend of mine, so I stopped the petition for these reasons and the fear that the ringleaders (the best qualified men in their class) would be expelled Now, two or more of us have recognized the antiquated teaching of this important subject What can we do? If you desire to publish this, kindly withhold the city and my name and try to offer me a solution for the trouble

A. B. C

Answer—The case referred to is perhaps by no means an isolated instance Although we withhold the name of the city, as our correspondent suggests, we think it wise to state that the college referred to is not located in Russia, in spite of the fear expressed lest the "ringleaders" be "expelled" for asking for a square deal Could not the petition be framed so as not to speak disrespectfully of this evidently heavy stockholder? The matter, of course, ought never to have gone so far as to make it necessary for the students to risk being plucked by preparing this petition The only right course to pursue now is for those who recognize the situation to explain it to the member referred to fairly and squarely, but in a gentlemanly and tactful manner, and afterward to bring the matter before the faculty If this does not speedily secure the desired result, those who stand for honesty and for up to date medical instruction should not continue to be associated with the institution In terminating their connection, they should state publicly the exact reason for their resignation If a few men were to do this it would make a vast difference in the medical teaching of many schools in this country For a physician to be connected with a school which gives out of date, insufficient and hence harmful instruction of this sort is to endorse that deficiency and is a discredit to the man

SPELLING AMONG IRREGULARS

————, ——, Dec 26, 1904

To the Editor:—The enclosed is an exact copy of an affidavit of "Dr." — — ————, which the county attorney gave me several years ago and which I know to be genuine This old doctor lives in the hills of ——— county, ———, and has been practicing medicine for over forty years. He never entered a medical college in his life, nor made a dissection. Although a very ignorant man, living in a little log house in a remote part of the country twenty miles from a railroad, he has patients from every state in the Union, and, like a great many quacks, performs some very miraculous cures (?). He is permitted to practice medicine in this state under the act of ——, having practiced medicine fifteen years prior to the above date. He became a member of the pharmaceutical association by sending that body $1. He is also on the staff of the St. Luke's Hospital, Niles, Mich., for the certificate of which he paid $10.

C. Y.

> ——— ——— ——— co febuery th 10, 1884.
>
> to th ko jug of th kort
> of ——— Co ———.
>
> Thys iz too sertafi tht i Hav Maid A fisikal Exam Of Willum D—— & find his Fisikal Helth vry week. he has skroflon ditis & asmos ditis his harte Is week & his blud Dont hav Kurrent Flo thro arters, i find he's Rupert in Grine and, and Abdom. his mind Wavers and he has Hall Lucy-nations and is Esy skert and he dont no howe too wurk kase His minde iz incent and i konsider hym A Fit subjick fer Silum
>
> Dr. — — ———, md. p.m, m.p.s.

Our correspondent explains that "skroflon ditis" means scrofulous diathesis; "asmos ditis," asthmatic diathesis; "incent," insane; "arters," arteries; "Rupert," ruptured; "p.m," postmaster; "m.p.s.," member of pharmaceutical association. In this connection we will also quote a letter received by Dr. W. F. Morrow, secretary of the Missouri State Board of Health.

> Dear Sir, I rite you these lines few lines to find out the requirements to Practis *Medison in the state of* Missouri i am a man that Thurruly understand dease. Lokate Dease By the appearance of the Tongue and other sins and the Different stages in the same manner also the Different Treatments in the Different stages. Thurruly understand all Kinds of Feavers, Inflemarity Deases in their Different forms, the Different Treatment as the Forms calls for also variolus Different affections of the Kidneys and their Different Treatments, also Different forms of Rumatic affections in their Different Tipes. *Also Heart affections of* various Forms as They appere and their Treatment *also Dease of the Nearves, Fits of all carecters* arising from the Brain Nerves and Mussels and their Different Treatments, also the many Different affections of the Throat such as Laringitas Diptheria and all other affections, Lung Troubles and all other Deases to numerous to mention. i received My Knowledge of Dease and the Practis of Medison under My Frends they were doctors. They Practese with the Benefit of Both Schools and that is what i have and thirty years instruction from a practice of sixty years. Please rite me.

IMMUNITY AND PHAGOCYTOSIS.

MILWAUKEE, WIS., Jan. 12, 1905.

To the Editor:—Please tell me where I can get some recent papers, in the English language, on "phagocytosis." I have Metchnikoff's latest article on that work in German, but am unable to translate it. Is there an English translation? Any recent article on "Immunity and Susceptibility" will probably answer my purpose as well if the theory of phagocytosis is well discussed.

DR. J. E. BINGHAM.

ANSWER.—Consult the special article on "Immunity," which begins in this issue of THE JOURNAL, page 294. The work of Metchnikoff on "Immunity in the Infectious Diseases," 1901, is the most authoritative and comprehensive treatise on the subject of phagocytosis. S. G. Binnie recently translated this work into English (The Macmillan Company, New York, 1904). Advances of the greatest importance in the study of phagocytosis have been made recently in England by Wright and Douglas (Proc. of the Royal Soc., London, 1903, vol. 72, p. 357; *Ibid.*, 1904, vol. 73, p. 128; *Lancet*, London, 1904, vol. 2, p. 1138; *Brit. Med. Jour.*, 1902, vol. 1, p. 73). The work of Wright and Douglas has been extended in important particulars in this country by Hektoen and Ruediger (*Jour. of Infectious Diseases*, 1905, vol. 2, No. 1). See also: Wesbrook, "Phagocytosis," *Northwest Lancet*, 1903, vol. 23, pp. 182-184 (Minneapolis). Our correspondent can certainly get the article he refers to translated in Milwaukee; if not we shall be glad to have it done for him.

ESTIMATED EXPENSES TO PORTLAND.

CINCINNATI, Jan. 17, 1905.

To the Editor:—Will you kindly let me know what the probable expense of the trip to Portland for the next session of the American Medical Association will be, as I would like to have this and make my plans accordingly?

H. W. B.

ANSWER.—The expenses of the trip will vary with the individual and his habits. From Cincinnati the railroad fare for the round trip will be about $60; sleeping car, double berth, both ways, $28; meals ($1 each), both ways, $20; hotel expenses at Portland, five days at $5, $25, or a total of $133. Of course, if one desires to be economical, these expenses can be reduced. By "doubling up," $14 can be deducted from the sleeping car expenses, or even more reduction is possible by *taking a tourist sleeper.* The dining car service is usually *a la carte*, and the average meal can be reduced below $1. Hotel accommodations can be obtained at much less than $5. These figures are based on a trip direct to Portland and return, without stopping on the way. We doubt if any will make such a long trip without taking advantage of some side excursion, and the expenses of this, of course, each individual must estimate for himself.

THE X-RAY IN PSORIASIS.

CAMBRIA, WIS., Jan. 13, 1905.

To the Editor:—1. What benefit, if any, is the *x*-ray in the treatment of psoriasis? 2. What number of exposures should be given in an average case of long standing before a noticeable improvement can be hoped for? 3. Are there any known cases recorded in which cures have been effected by the use of the *x*-ray?

C. E. S.

ANSWER.—1. Psoriasis can be cleaned up with the *x*-ray; the treatment has been given a thorough trial by dermatologists, with very satisfactory results. 2. The second question can not be answered in the form in which it is propounded. The number of exposures required depends entirely on the quantity of *x*-rays used in the exposure. It is not necessary usually to carry the exposures to the point of producing any reaction in order to get rid of a patch of psoriasis. 3. Numerous references to recorded cases will be found in the text-books on *x*-ray work, under psoriasis; for example, Pusey & Caldwell, and Williams.

BOOKS ON DIAGNOSIS BY THE MICROSCOPE.

LA AURORA., PUEB., MEX., Jan. 15, 1905.

To the Editor:—What is the best book on laboratory diagnosis, including technic of staining, preparation of stains and use of the microscope in making such diagnoses?

B. W. GREEN, M.D.

ANSWER.—Simon's "Clinical Diagnosis" (Lea Bros.); Lee's "Vade Mecum" (Blakiston); Oertel's "Medical Microscopy" (Blakiston); Mallory and Wright's "Pathologic Technique" (Saunders); Ewing's "Clinical Pathology of the Blood" (Lea Bros.). These can be ordered from any bookseller.

Marriages.

WILLIAM EARL HAMLIN, M.D., to Miss Fay Voohers, both of Pocahontas, Ark.

ANDREW J. WALLS, M.D., to Miss Ida Smith, both of Lonoke, Ark., January 4.

JOSEPH WEINBERG, M.D., to Miss Helen G. Kelly, both of Brooklyn, January 2.

CLARENCE E. APPLE, M.D., to Miss Emma P. Crowe, both of Philadelphia, January 8.

CHARLES F. DARNALL, M.D., to Miss Ona Parkhill, both of Llano, Texas, January 4.

JOSEPH DRIES, M.D., to Miss Marie Altmeier, both of Milwaukee, Wis., January 11.

J. HARRY CRAWFORD, M.D., to Miss Mary E. Madden, both of Castlewood, S. D., January 1.

JOHN H. MARTIN, M. D., to Miss Marie Glidden, both of Centerville, S. D., at Parker, S. D.

C. C. HATFIELD, M.D., Kingston, Ohio, to Miss Maud M. Grim of Columbus, December 28.

WILLIAM A. STARNES, M.D., to Miss Callie Barrow Torbett, both of Atlanta, Ga., January 11.

GEORGE S. EDMONSON, M.D., Clinton, Ill., to Miss Della B. Jones of Thawville, Ill., January 4.

W. W. LUCAS, M.D., New Washington, Ohio, to Miss Goldie Staley of Sidney, Ohio, December 25.

HALBERT F. NEAL, M.D., Meridian, Idaho, to Miss Grace Andrews of Peru, Neb., December 28.

EDWARD DANFORTH, M.D., New York City, to Miss Helen Mattice of Gilboa, N. Y., January 18.

OLIVER S. REILEY, M.D., Red Oak, Iowa, to Mrs. Estelle Whipple of Belvidere, Ill., January 17.

READDING LLOYD WILLIAMS, M.D., to Miss Eleanor Magdalen Henke, at Las Vegas, N. M., January 10.

ISAAC MARION BURNSIDE, M.D., to Miss Jessie May McDonald, both of Highmore, S. D., January 10.

SIDNEY J. HATFIELD, M.D., Indianapolis, to Miss Calhoun Peckinpaugh of Alton, Ind., December 28.

Prather B. Curlin, M.D., Hickman, Ky., to Miss Ruth Seates of Union City, Tenn., January 13.

William Russell Jones, M.D., Richmond, Va., to Miss Jane Taylor Fisher of Norfolk, Va., January 6.

Andrew R. G. Smith, M.D., North Whitefield, Maine, to Mrs. Maude Allen of Jefferson, Maine, December 31.

James Henry Ferrell, M.D., Woodlawn, Ala., to Miss Marion Lucile Edwards of Sylacauga, Ala., January 25.

Aural Alva Sandy, M.D., Washington, Iowa, to Miss Blanche May Foshier of Harvey, Iowa, January 18.

Winfred Morgan Hartshorn, M.D., New Haven, Conn., to Miss Edith May Lieb of New York City, January 11.

Augustus W. Thompson, M. D., Mineral Wells, Texas, to Miss Estelle Johnson of Jackson, Miss., January 11.

Rutherford B. Irones, M.D., San Francisco, to Miss Georgia E. Dow of San Diego, Cal., in Los Angeles, January 12.

Benjamin Austin Cheney, M.D., New Haven, Conn., to Miss Lillian Clark Farrel of Ansonia, Conn., January 11.

Albert Ralston Matheny, M.D., Pittsburg, Pa., to Miss Florence Belt Kitzmiller of Hawkins Station, Pa., January 24.

Charles A. Hauber, M.D., Walla Walla, Wash., to Miss Elletta Lydia Wiltfi of San Jose, Cal., at San Francisco, December 31.

Percy Fitzgerald McMurdo, M.D., acting assistant surgeon United States Navy, Charlotteville, Va., to Miss Genevieve Le Duc of Philadelphia, January 11.

Deaths.

Thos. H. Manley, M.D. New York University, New York City, 1875, member of the Mississippi Valley Medical Association; New York Academy of Medicine, New York County Medical Society; professor of surgery and surgical pathology New York School of Clinical Medicine; visiting surgeon to Harlem and Metropolitan Hospitals, died from pneumonia at his home in New York City, January 13, aged 54.

Albert G. Carr, M.D. Bellevue Hospital Medical College, New York City, 1870, formerly surgeon of the North Carolina State Troops; first vice-president and treasurer for eight years of the Medical Society of the State of North Carolina; president of the Durham County Medical Society, committed suicide while despondent, by shooting himself at his home in Durham, January 13, aged 54.

Josiah Peltz, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867, a member of the American Medical Association, Medical Society of the State of Pennsylvania and Philadelphia County Medical Society, died at his home in Philadelphia from valvular heart disease following a severe attack of influenza, January 13, aged 62.

Charles H. Norred, M.D. St. Louis College of Physicians and Surgeons, 1865; Jefferson Medical College, Philadelphia, 1886; surgeon of the Seventh Illinois Volunteer Cavalry in the Civil War; special quarantine officer of Minneapolis during the smallpox epidemic of 1900, died at the Landour Hotel, Minneapolis, January 11, a few days after an operation.

Emmet Perdue, M.D. Marion-Sims College of Medicine, St. Louis, 1896, surgeon to the North American Coffee Company and Carbon Lumber Company; deputy health officer of Carbon County, Wyo., was shot through the back of the head and killed while in bed at his father-in-law's house near Richmond, Mo., January 18.

Peter B. M. Miller, M.D. Royal College of Surgeons, Edinburgh, Scotland, 1858, surgeon in the British army in India for ten years, a practitioner in Australia and New Zealand; since 1882 a resident of Seattle, Wash., died at his home in that city, December 2, from cancer of the mouth, after an illness of four years, aged 69.

Duncan Reid, M.D. Rush Medical College, Chicago 1878, a member of the American Medical Association; for two years a self-supported medical missionary on the west coast of Africa, died at his home in New Hampton, Iowa, January 11, from valvular heart disease—aortic stenosis—aged 58.

Louis E. Foudruat, M.D. Faculté de Médecine, Montpellier, France, 1864, surgeon in the army of Maximilian in Mexico; coroner and parish physician for twenty-four years, and president of the local board of health for ten years, died at his home in St. Bernard, La., after a long illness, aged 63.

Arthur O'Leary, M.D. Jefferson Medical College, Philadelphia, 1866, while depressed from financial difficulties and suffering from injuries received in a street-car accident, ended his life, January 18, by shooting himself through the heart at his home in Cleveland, Ohio, aged 75.

Henry R. McComb, M.D. Rush Medical College, Chicago, 1881, for two years mayor of Shawano, Wis., and for four years county judge of Shawano County, died at his home in Shawano, January 10, from nephritis, after an illness of several years, aged 50.

William J. Gautier, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, for half a century a practitioner of Tuskogee, Ala., died at his home in that city, January 13, from heart disease, after an illness of one week, aged 79.

William Aills, M.D. Tulane University of Louisiana, Medical Department, 1853, surgeon of the Sixth Mississippi Infantry, C. S. A., and brigade surgeon in the Civil War, died at his home in Steen's Creek, Rankin County, Miss., January 14, aged 80.

Odelia Blinn, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1868, formerly prominent in professional and social circles in Chicago, died at the Cook County Infirmary, Dunning, January 20, after an illness of six years, aged 60.

George W. Harrison, M.D. Rush Medical College, Chicago, 1881, of Ashland, Wis., once a member of the Wisconsin State Board of Medical Examiners; second mayor of Ashland, died January 12 at Grand Rapids, Mich., from heart disease, aged 55.

Leonard J. Gordon, M.D. Bellevue Hospital Medical College, New York City, 1875, director of the Jersey City Public Library, died at his home in Jersey City from heart disease, January 17, after an illness of three months, aged 60.

Stephen M. Switzer, M.D. University of Vermont Medical Department, Burlington, 1880, died at his home in Bradford, N. Y., January 7, from paralysis following diphtheria, after an illness of several weeks, aged 56.

Daniel O. Polin, M.D. Medical Department of the St. Louis University, 1851, president of the Washington County (Ky.) Medical Society, died at his home in Springfield, January 14, from heart disease, aged 75.

John R. Howes, M.D. Medical College of Ohio, Cincinnati, 1879, of Las Comas, N. Mex., representative in the Minnesota Legislature in 1884 and 1885, died suddenly in El Paso, Tex., January 10, aged 56.

John McJunkins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died at his home in Tuccoa, Ga., January 10, from nephritis, after an illness of two months.

Franklin Byington, M.D. University of Georgetown, Washington, D. C., 1858, surgeon in the Confederate service during the Civil War, died at his home in Charlestown, W. Va., January 14, aged 66.

James Leslie Harding, M.D. Starling Medical College, Columbus, Ohio, 1883, died at his home in Blairsville, Pa., January 10, from cerebral hemorrhage, after an illness of several days, aged 45.

Edward D. Bernreuter, M.D. Missouri Medical College, St. Louis, 1880, a member of the American Medical Association, died at his home in Mount Olive, Ill., December 9, aged 46.

Charles E. Oatis, M.D. Transylvania University Medical Department, Lexington, Ky., 1846, died at his home in Hazlehurst, Miss., January 6, from cerebral hemorrhage, aged 81.

James D. McKnight, M.D. Memphis (Tenn.) Hospital Medical College, 1882, sheriff of St. Francis County, Ark., died suddenly at his home in Forrest City, January 8, aged 62.

J. P. Lowery, M.D. Vanderbilt University Medical Department, Nashville, 1879, died recently at his home in Renner, Texas, and was buried at Corsicana, Texas, January 15.

Michael R. Kelly, M.D. Rush Medical College, Chicago, afterward prominent as an educator, died at his home near Morrison, Ill., recently, and was buried January 7; aged 84.

Gustavus Nelson, M.D. Louisville Medical College, 1893, died at his home in Trufant, Mich., January 12, from hemorrhage of the stomach, after an illness of three days, aged 50.

John S. Smalley, M.D. Ohio Medical University, Columbus, 1893, died at his home in Newark, N. J., January 8, from nephritis, after an illness of three months, aged 49.

S. R. Hubbard, M.D. University of Nashville Medical Department, 1862, died at the home of his son in St. Augustine, Fla., January 1, after a long illness, aged 70.

James H. Cossaart, M.D. New York, 1870, of Otego, N. Y., died at a hospital in New York City, January 2, four days after an operation for cholelithiasis, aged 58.

John H. Donaldson, M.D. Starling Medical College, Columbus, Ohio, 1881, died at his home in Gore, Ohio, from cerebral hemorrhage, after an illness of a year, aged 56.

Robert B. Dupree, M.D. Bellevue Hospital Medical College, New York City, 1874, died at his home in Marlin, Texas, January 11, after a prolonged illness, aged 54.

William H. Ensminger, M.D. Jefferson Medical College, Philadelphia, 1871, died suddenly at his home in Chicago, January 17, from cerebral hemorrhage, aged 61.

Seth R. Beckwith, M.D. Ohio, 1853, of New York City, physician to the late President Garfield, died at Atlantic City, January 20, after an illness of a year, aged 72.

S. Cordelia Enos, M.D. Illinois, 1891, died at her home in Jerseyville, Ill., January 17, from injuries sustained in an explosion of gasoline the day before, aged 60.

Thomas M. Johns, M.D. Rush Medical College, Chicago, 1877, died at his home in Taylorsville, Ill., from liver disease, after a long illness, aged 58.

John B. Adams, M.D. Medical College of Alabama, Mobile, 1898, died at his home in Clanton, Ala., January 10, after amputation of both feet.

Robert P. Lake, M.D. University of Maryland School of Medicine, Baltimore, 1849, died at his home near Locust Dale, Va., recently, aged 83.

John A. Hamilton, M.D. Jefferson Medical College, Philadelphia, 1876, died at his home, Pollock, La., January 11, aged 70.

Thomas N. Livesay, M.D. Rush Medical College, Chicago, 1868, died at his home in Patoka, Ill., January 10, aged 68.

Ewing Peyton Biggs, M.D. Cincinnati, 1878, died at his home in Lutesville, Mo., January 4, from heart disease, aged 52.

Gustave Schmidt, M.D. University of Breslau, Germany, 1838, died at his home in Ingraham, Ill., December 1, aged 88.

Samuel G. Weagley, M.D. Years of Practice, Illinois, 1878, died at his home in Jacksonville, Ill., December 7, aged 78.

A. G. Wertman, M.D. Baltimore University School of Medicine, 1898, died at his home in Effort, Pa., January 18.

Jesse Chewning, M.D. St. Louis Medical College, 1863, died at his home in Canton, Ill., Sept. 21, 1904, aged 65.

George H. Winkelmann, M.D. Cincinnati College of Medicine and Surgery, died in Chicago, December 19, aged 52.

F. Virgil Westfall, M.D. Medical College of Ohio, Cincinnati, 1889, died at Dahlgren, Ill., Nov. 23, 1904, aged 49.

John Pearson Iliff, M.D. Pennsylvania, 1883, died at his home in Philadelphia, January 11, aged 54.

Jeremiah Phillips, M.D. Cincinnati, 1855, died at his home *in Olney, Ill., Oct. 16, 1904, aged 88.*

Miscellany.

The Cytology of General Paresis.—Fischer reports two cases of paresis, of which the diagnosis was unquestioned, which were examined as to the condition of their blood cells by lumbar puncture during life with strikingly different results. In one there was almost entire absence of lymphocytes, in the other marked lymphocytosis. The autopsy in both cases revealed typical paretic meningeal infiltration. The conclusion he draws, in the *Präger med. Woch.*, is that we can not determine by the cytologic findings whether or not the meninges are specially inflamed, but only how strongly and how far they are infiltrated and to some extent whether the process is slow or rapid. Of course, the quantitative determination of the cells of the cerebrospinal fluid is only an approximate one. Another point noted in his observations is that the cells found by lumbar puncture are either identical with or of the same type as those in the meninges, and probably originate in the meninges, and we must assume a downward flow from the brain carrying them into the lower spinal region. Infiltration of the spinal meninges is an accompaniment of this condition even though the spinal cord itself may apparently be intact.

Overpressure in School.—Commenting on the scarcity of cases of chorea in the summer and fall, and the abundance of such cases seen in the late winter and spring, Dr. La Fetra, in the *Archives of Pediatrics*, attributes this condition in great measure to overwork in school. During October or November it is often difficult, even in a large ambulatory service, to collect sufficient cases for a clinical lecture on the various phases of chorea. As the seasons proceed, the cases increase slowly in number until about March or April, when there is a sudden rise in the number of those affected. Pale, thin, ambitious children, the majority of them girls, then throng the nervous and pediatric clinics in all stages of the disease. Probably the most important exciting cause, at least in those cases that are not clearly rheumatic, is excessive stimulation of the cortical cells of the brain. This results in the gradual supervention of undernutrition and consequently in overexcitability of these cells. The nature of the stimulation varies. It may be the social excitement of children's parties, long waking hours, a bad fright, great grief, strenuous games, too many or too long school periods, home study at night, or the strain and anxiety of class recitations; or, it may be improper food or indigestion; at any rate, the result is much the same. The child's nervous system becomes debilitated, loses its power of inhibition, and manifests the overactivity of weakness. St. Vitus' dance is cited merely as one of the extreme types of this nervous exhaustion. In the treatment it is pointed out that careful attention to the number and character of the different subjects, the length of the lessons and the time of study is necessary. Change of study or the alternation of physical exercise, games or manual training with mental effort is desirable; but it must be remembered that change of work, or change from work to play is not rest, although the result may be added interest in the new occupation. Change of employment is not recreation; for all effort fatigues. Children that need especially to be watched during the school year are those of alcoholic, tuberculous or neurotic family history, those that are anemic, those that are growing rapidly, especially girls at the period of prepubertal acceleration in growth, from 11 to 13 years, and those that have recently suffered from whooping cough, measles and diphtheria. Only by the exercise of caution in their school work can such children be prevented from suffering the ill effects of overpressure. Persistent headaches, not due to eye defects, disturbed sleep, morning languor and loss of appetite, are warning symptoms; if they persist after modification of the school régime, the child should be withdrawn from school for three or four weeks, or until all signs of nervous exhaustion have disappeared. Disregard of these early symptoms risks the more serious results of overpressure, such as chorea, neurasthenia, hypochondriasis, hysteria, and even epilepsy and insanity in patients of neurotic heredity.

State Boards of Registration.

COMING EXAMINATIONS.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

California December Report.—Dr. C. L. Tisdale, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco Dec. 6, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 40, of whom 24 passed and 16 failed. The following colleges were represented:

PASSED.

College.	Year Grad	Per Cent.
Cooper Medical College	(1904) 78 8, 82.1, 82.8, 84,	81 8
College of P. and S., Chicago	(1895) 86 1, (1902) 75, (1904)	76 9
	(1903) 75.7,	87 3
University of Michigan	(1901)	87.6
Rush Medical College	(1902)	83 3
Howard Medical College	(1902)	78 1
Jefferson Medical College	(1904)	77.6
McGill University, Canada		

University of Missouri	(1904)	75
Hahnemann Med. Coll., San Francisco, (1903) 75.7	(1904)	82.1, 82.6
Northwestern University	(1904)	82.2
University of California	(1904)	75
College of Med. and Surg., Minnesota	(1900)	85
Gross Medical College	(1902)	87.7
Starling Medical College	(1898)	82.1
Chicago Homeo. Med. Coll	(1888)	80.4
FAILED.		
Cooper Medical College	(1903)	65
University of Michigan	(1890)	62.3, 67
University of Berlin, Germany	(1899)	64.1
Rush Medical College	(1882)	69.3
Jefferson Medical College (1902) 68.1,	(1893)	36.4
Tufts Medical College	(1902)	59.2
Marion Sims-Beaumont Med. Coll	(1903)	67.7
Medical College of South Carolina	(1897)	70.4
Bellevue Hospital Med. Coll (1889) 69.7,	(1877)	66.4
University of Virginia	(1891)	62.6
University of Louisville	(1890)	68.5
College of P. and S, Chicago	(1901)	71.6
College of P. and S., San Francisco	(1904)	70.6

Oklahoma December Report.—Dr. E. E. Cowdrick, secretary of the Territorial Medical Examining Board of Oklahoma, reports the examination held at Guthrie, Dec. 2-8, 1904. The number of subjects examined in was 9; total number of questions asked, 85. No percentages are assigned by this board, but each candidate is required to attain a grade of 66.6 or over in each branch. The total number examined was 19, of whom 5 passed and 14 failed. The following colleges were represented:

PASSED.

University Medical College, Kansas City, Mo. (1904), had 1 representative; Northwestern University (1892), 1; Hahnemann Medical College, Chicago (1891), 1; Illinois Medical College (1904), 1, and Medical Department Drake University (1897), 1.

FAILED.

The following colleges had each one representative: American Medical Missionary College, Chicago (1903); Kansas City Medical College (1897); Baltimore University (1904); Baltimore Medical College (1896): College of Physicians and Surgeons, Baltimore (1885): University of Vermont (1904); University of Medicine, Kansas City, Mo. (1884); American Medical College, St. Louis (1904); Hospital Medical College, Kansas (1893): University of Michigan (1872); Rush Medical College (1900); Hospital College of Medicine, Kentucky (1889), and Barnes Medical College (1901).

Nebraska November Report.—Dr. George H. Brash, Beatrice, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 9-10, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 8, all of whom passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Kentucky School of Medicine	(1904)	81.1
Kentucky Univ. Med. Dept	(1904)	78.1
Barnes Medical College	(1901)	78.1
[illegible] y	(1904)	85.1
[illegible] Chicago	(1882)	80.8
[illegible] llege	(1898)	86
[illegible] e	(1902)	81.2
[illegible] ege	(1900)	*77.1

Maryland June, September and October Reports.—Dr. Joseph H. Garrison, secretary of the Board of Medical Examiners of Maryland, representing the Maryland State Homeopathic Medical Society, reports the examinations held at Baltimore, June 7-8, September 30, and Oct. 26, 1904. The number of subjects examined in was 9; total number of questions asked, 70; percentage required to pass, 75.

At the June examination the total number examined was 13, all of whom passed. The following colleges were represented:

Southern Homeopathic Med. Coll., (1904) 77.4, 78.7, 81, 82.7, 83.7, 86.4, 88.1, 88.5, 88.7, 88.8, 92.5, 93.1.
Hering Medical College, Chicago (1904) 93.7

The general average of all representatives of the Southern Homeopathic Medical College was 85.8.

The examinations held September 30 and October 26 were oral. Only two persons were examined, both of whom passed.

Hahnemann Med. Coll., Philadelphia (1904) 75, 75

Ohio December Report.—Dr. Frank J. Winders, secretary of the Ohio State Board of Medical Registration and Examination, reports the written examination held at Columbus, Dec. 13-15, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 42, of whom 40 passed and 2 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Columbian Univ., Washington, D. C.	(1904)	91
Univ. of Virginia Med. Dept (1900) 94,	(1902)	83
Univ. of Moscow, Moscow, Russia	(1899)	90
Univ. of Munich, Munich, Germany	(1899)	82
Univ. of Buffalo	(1895)	85
Ohio Medical University	(1904)	91, 79, 75
Starling Medical College (1904) 79, 78, 86,	(1903)	88
Hospital Coll. of Med., Louisville	(1903)	81
Detroit Medical College	(1887)	77
Howard Univ., Washington, D. C.	(1904)	78, 88, 84
Western Reserve Univ	(1883)	83
Imperial Alexander Univ., Helsingfors, Finland	(1903)	80
Kentucky School of Medicine	(1904)	82
Univ. of Louisville	(1904)	90
Barnes Med. Coll., St. Louis	(1899)	83
Baltimore Med. Coll	(1904)	91
Tufts Med. School, Boston	(1903)	84
Med. Coll. of Ohio	(1903)	88
McGill University, Montreal	(1895)	81
Cleveland Homeo. Med. Coll	(1904)	81, 80, 79
Eclectic Med. Coll., New York	(1899)	81
Univ. of Toronto, Ont., Can	(1901)	94
Univ. of Louisville	(1904)	80
Univ. of Southern California, Los Angeles	(1903)	94
Coll. of P. and S., Baltimore	(1902)	84
Jefferson Med. Coll., Philadelphia	(1903)	91, 84
Rush Med. Coll., Chicago	(1900)	86
Long Island Hospital Coll.	(1902)	90
Univ. of Michigan	(1890)	78
FAILED.		
Toledo Med. Coll	(1904)	73
Eclectic Med. Inst., Cincinnati	(1904)	72

Association News.

The Portland Session.

Dr. Kenneth J. Mackenzie, Chairman of the Committee on Arrangements, writes concerning arrangements for the session of the American Medical Association in Portland:

Hotel Arrangements have been placed in the hands of a committee, at the head of which is Dr. William Jones, and consisting of the following: Drs. R. C. Coffey, W. H. Skeene, C. H. Wheeler, A. E. Mackey and Mr. H. C. Bowers (by courtesy).

Mr. H. C. Bowers, the manager of the Hotel Portland, has undertaken to provide accommodations for any number that will attend the session. Mr. Bowers has informed the committee that he can readily take care of 4,000 or 5,000 visitors, and those who contemplate coming are requested to communicate with him and to make contracts for their accommodations without any delay. In anticipation of the Lewis and Clark Fair, the success of which is now an assured fact, the hotel and room capacity of the city has been greatly increased by 7,000 rooms from last year.

The management of the Lewis and Clark Fair have made arrangements with Mrs. McCready, who managed the American Inn at the St. Louis Fair, to build, within the city limits and within convenient distance of the center of the city, a hotel with a capacity of over 500 rooms. It will be better built than any structure of the kind that was in use in St. Louis, and a great many of the rooms will be furnished with baths. A large number of moderate sized but high-class hotels are under construction.

Excursions are being arranged by the local committee to take place on the Columbia River, which will enable the visitors to witness the choicest scenery of the Pacific Coast, including the unrivaled mountain scenery of the Cascade Range. Plans are being considered for excursions to Alaska and to the Orient. These arrangements, of course, will depend on a sufficient number of visitors announcing their plans in advance, indicating their intentions of making these excursions.

The most admirable arrangements have been made for the Section sessions.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 21, 1905:

Turnbull, Wilfrid, asst.-surgeon, advanced to rank of captain, to date from Jan. 16, 1905.

Egbert, R. G., surgeon, left from detached duty at Fort D. A. Russell, Wyoming, on 15 days' leave of absence.

Sweazey, Verge E., asst.-surgeon, reported at U. S. Army General Hospital, Washington Barracks, D. C., for treatment, from leave of absence.

Smart, Charles, brigadier general, retired as colonel and asst.-surgeon general, and advanced to brigadier general on retired list.

Hess, John H., examining and supervising dental surgeon, left West Point, N. Y., January 16, for San Francisco, Cal., en route to Philippine service.

Sparrenberger, Frederick H., contract surgeon, returned January 16 to Fort Mott, N. J., from leave of absence.

Wythe, Stephen, contract surgeon, returned January 10 to San Francisco, Cal., from leave of absence.

Foulkes, Bruce, contract surgeon, granted an extension of one month to his leave of absence.

Reitz, Hugo C., dental surgeon, returned January 17 to duty at Fort Sheridan, Ill., from leave of absence.

Ware, William H., dental surgeon, ordered to visit in succession, to render professional service, Fort Wingate, N. M.; Fort Apache, Ariz.; Whipple Barracks, Ariz.; Fort Huachuca, Ariz., and Fort Grant, Ariz.

Truax, Jesse P., contract surgeon, left Fort Lawton, Wash., January 14 for his proper station, Fort Ward, Wash.

Long, Charles J., dental surgeon, ordered to proceed at the expiration of his present leave of absence to Fort Snelling, Minn., for duty.

Hussey, Samuel W., dental surgeon, relieved from duty in the Department of Dakota and ordered to San Francisco, Cal., to sail March 1 for Philippine service.

McAlister, John A., dental surgeon, relieved from duty in the Philippine Division March 10 and ordered to the United States for assignment.

Millikin, John D., dental surgeon, relieved from duty in the Philippine Division April 14 and ordered to the United States for assignment.

Casaday, George H., dental surgeon, relieved from duty in the Philippine Division April 21 and ordered to the United States for assignment.

Bernheim, Julien R., dental surgeon, relieved from duty in the Philippine Division May 27 and ordered to the United States for assignment.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 21, 1905:

Pleadwell, F. L., surgeon, detached from the Naval Dispensary, Washington, D. C., January 31, and ordered to duty at the Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., February 14.

Plummer, R. W., P. A. surgeon, detached from the Naval Hospital, San Juan, P. R, and granted leave of absence until February 15.

Garton, W. M., P. A. surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home.

Butler, C. S., P. A. surgeon, detached from the *Constellation*, Jannuary 18, and ordered to the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., January 21.

Stuart, A., asst.-surgeon, detached from the Naval Hospital, San Juan, P. R., and ordered to Washingtoon, D. C., February 15 for examination for promotion, and thence home and to await orders.

Rodman, S. S., P. A. surgeon, ordered to the *Pensacola*.

Sellers, F. E., A. A. surgeon, detached from the *Gloucester* and ordered to the *Franklin*.

Alfred, A. R., surgeon, detached from the *Solace* and ordered to the Naval Station, Cavite, P. I.

McLarty, C., pharmacist, detached from the *Solace* and ordered to the Naval Hospital, Yokohama, Japan.

Public Health and Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending Jan. 18, 1905:

Greene, J. B., P. A. surgeon, seven days' extension of leave of absence from January 7, granted by Bureau telegram of January 4, revoked.

Townsend, W., A. A. surgeon, Department letter of Nov. 22, 1904, amended to grant A. A. Surgeon Townsend leave of absence for twelve days, instead of 30 days, from Dec. 15, 1904.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Jan. 19, 1905, for the physical examination of an applicant for the position of second assistant engineer, Revenue Cutter Service. Detail for the Board: Asst.-Surgeon General G. T. Vaughan, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 20, 1905:

Alabama: Mobile, Dec. 19-Jan. 9, 3 cases from vessels in port.
Arkansas: Fort Smith, Dec. 10-17, 1 case.
Illinois: Chicago, Jan 8 14, 16 cases, 1 death; Danville, Jan. 8-14, 2 cases; Peoria, Dec. 1-31, 7 cases.
Kansas: Topeka, Jan. 8-14, 1 case.
Louisiana: New Orleans, Jan. 8 14, 7 cases.
Massachusetts: Everett, Jan. 8-14, 3 cases, 1 death; Hyde Park, Jan. 8-14, 1 case from Steamship *Cymric*.
Massachusetts: Everett, Jan. 8-14, 3 cases.
Dec. 1-31, 1 death; Jackson Co., Dec. 1-31, 1 death.
Minnesota: Clay Co., Jan. 3-9, 1 case; Morrison Co., Jan. 3-9, 1 case; Otter Tail Co., Jan. 3-9, 8 cases; Rice Co., Jan. 3-9, 2 cases; St. Louis Co., Jan. 3-9, 3 cases; Todd Co., Jan 3-9, 3 cases; Wadena Co., Jan. 3-9, 5 cases.
Missouri: St. Louis, Jan. 8-14, 17 cases.
New York: New York, Jan. 8-14, 2 cases.
Ohio: Toledo, Jan. 10 17, 2 cases.
Pennsylvania: Homestead, Jan. 9-15, 1 case.
South Carolina: Georgetown, Jan. 1-14, 10 cases.
Tennessee: Memphis, Jan. 8-14, 2 cases; Nashville, Jan. 8 14, 4 cases.
Wisconsin: Milwaukee, Jan. 8-14, 8 cases.

SMALLPOX—FOREIGN.

Brazil: Para, Dec. 1-14, 54 deaths; Rio de Janeiro, Dec. 12-18, 102 cases, 34 deaths.
France: Lyons, Dec. 18-24, 1 case; Paris, Dec. 28-31, 14 cases, 4 deaths.
Great Britain: Hull, Dec. 25-31, 1 case; London, Dec. 25-31, 5 cases; Manchester, Dec. 25-31, 2 cases; Newcastle on Tyne, Dec. 25-31, 3 cases; Nottingham, Dec. 25-31, 2 cases.
India: Bombay, Dec. 14-20, 25 deaths; Calcutta, Dec. 10-16, 1 death; Karachi, Dec. 12-18, 4 cases.
Italy: Catani, Dec. 23-31, 2 deaths; Palermo, Dec. 18 24, 14 cases, 5 deaths.
Panama: Colon, Jan. 1-8, 1 case.
Spain: Barcelona, Dec. 21-31, 11 deaths.

YELLOW FEVER.

Brazil: Para, Dec. 1-14, 18 deaths.
Mexico: Coatzacoalcos, Dec. 28-31, 2 cases; Juchitan, Jan. 1-7, 1 case.
Venezuela: *Maracaibo, Dec. 4-11, 1 case, 1 death.*

CHOLERA.

India: Bombay, Dec. 14-20, 1 death; Calcutta, Dec. 10 17, 108 deaths.
Russia: Dshewat, Dec. 8 14, 264 cases, 203 deaths; Hedjuff Dec. 8-14, 177 cases, 152 deaths.

PLAGUE.

Arabia: Crater, Dec. 17-24, 43 cases, 28 deaths; Hedjuff (Plague hospitals), Dec. 17-24, 5 cases, 7 deaths; Shaikh Othman, Dec. 17-24, 7 cases, 3 deaths.
Chile: Iquique, Dec. 4-17, 2 cases, 2 deaths; Santiago, Dec. 2, 1 case.
Egypt: Port Said, Dec. 10-17, 1 case 1 death; Suez, Dec 10-17, 1 case; Tukh District, Dec. 10-17, 1 case.
India: Bombay, Dec. 14-20, 102 deaths; Calcutta, Dec. 10 17, 15 deaths; Karachi, Dec. 12-18, 56 cases, 52 deaths.
Japan: Kobe, Dec. 16, 1 case.
Mauritius: Oct. 14-Nov. 3, 61 cases, 35 deaths.

Medical Organization.

Michigan.

ORGANIZATION IN MICHIGAN.—From a personal letter, dated January 23, received from Dr. Leartus Connor, chairman of the council of the Michigan State Medical Society, we quote the following: "Our Michigan council held its winter meeting last Friday. Work began at 8:30 a. m. and continued as rapidly as was possible till dark. We found ourselves ahead of last year in numbers and finances. Several knotty problems in different portions of our field had been solved pleasantly. Others are on the way to solution. The general tone of correspondence was higher than ever. But one complaining letter had been received during the past year. On the other hand, our advance has been small; several of our councilors had fainted with the work and wanted to give it up. Hence it was necessary to recharge them with enthusiasm, which was done, and they left determined to do better the coming year. Our limited time forbade a discussion of other than the necessary business and plan for the coming months. All this is better than I had anticipated. Five of the councilor districts have held district meetings, with profit to all in increasing enthusiasm and closer fellowship. Other district societies will be formed later."

Texas.

CENTRAL TEXAS (TWELFTH) DISTRICT MEDICAL ASSOCIATION.—The Central Texas Medical Association met at Waco, January 10 and 11 and reorganized on the standard plan as the Central Texas (Twelfth) District Medical Association, electing the following officers: President, Dr. Robert Alexander, Troy; vice-presidents, the presidents of the component county societies, and secretary-treasurer, Dr. John L. Burgess, Waco.

West Virginia.

GRANT, HARDY, HAMPSHIRE AND MINERAL MEDICAL SOCIETY.—At a meeting of 14 physicians of these counties, held at Keyser the first week of January, this society was organized with the following officers: Dr. Edgar H. Parsons, Piedmont, president; Drs. J. N. Judy, Petersburg, Grant Co., Robert W. Love, Moorefield, Hardy Co., George H. Thomas, Romney, Hampshire Co., and Lloyd L. Edgell, Keyser, vice-presidents; Dr. Percival Lantz, Alaska, secretary, and Dr. Monsell R. Bell, Keyser, treasurer.

Society Proceedings.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-Second Annual Meeting, held at Havana, Cuba, Jan. 9-13, 1905.

The President, Dr. Carlos J. Finlay of Havana, in the Chair.

Addresses of welcome were delivered by Dr. Cancio, secretary of public instruction to President Palma, representing the Cuban government, and by Dr. Lincoln de Zayas, representing the medical profession of Havana.

President's Address.

After thanking the association for the great honor conferred on him in electing him president, Dr. Finlay referred to the first Havana yellow fever commission, which was established a quarter of a century ago and came from Washington. So well did this commission accomplish its object that he could readily trace back to its immediate influence the discoveries which led the way to ultimate success. He stated that the sanitary experience in Cuba during the last twelve months, both with regard to yellow fever and to smallpox, had been somewhat more eventful and at the same time more instructive than in the preceding two years. In the district of Havana, notwithstanding the admission of imported cases of yellow fever from foreign ports, not a single case, originating on the island, had been recorded. With the experimental proofs that they now possess that fomites *per se* were incapable of transmitting the disease, the inevitable conclusion must be that in the cases mentioned infected mosquitoes had been conveyed on floating bodies by the ebb-tide. The fight against tuberculosis must be maintained at all costs as the most important factor in mortuary statistics of large towns almost all over the world. The study of causes and prevention of infant mortality is one which affects Cuba not only with reference to infantile enteritis, but also with regard to tetanus neonatorum, the occurrence of which is coupled with unpardonable ignorance or neglect both on the part of parents and of the attendants at the birth of children. The control of milk supplies in large cities is closely connected with infantile mortality, for the methods best calculated to carry the former into effect should undoubtedly lessen the latter. Finally, the subject of sanitary agreement between adjoining nations has become of paramount importance since the recent advance made in our knowledge of the etiology of certain quarantinable diseases, of yellow fever in particular. Hence the advisability that European nations holding possessions in the American yellow fever zone be represented at the meetings of the association.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. F. F. Wesbrook, Minneapolis, Minn.; vice-presidents, Dr. Juan Guiteras, Havana, Cuba; Dr. F. Lopez, Mexico City, Mexico; Dr. Geo. MacDonald, Brandon, Manitoba; executive council: Drs. Marcus Haas, Memphis, Tenn.; C. V. Chapin, Providence, R. I., and Wm. C. Chapman, Toledo, Ohio; secretary, Dr. Chas. O. Probst, Columbus, Ohio (re-elected); treasurer, Dr. Frank W. Wright, New Haven, Conn. (re-elected). Boston was selected as the next place of meeting.

Purification of the St. Louis Water Supply By Coagulation and Sedimentation.

Dr. C. A. Snodgrass, St. Louis, said that from the year 1832, the time at which the first water works system of St. Louis was installed, until 1904, the water supply of St. Louis had been unsatisfactory, and that in a few months' time a complete transformation of the quality of the water had been secured by using ferrous sulphate and calcium hydroxid as a coagulant, followed by plain sedimentation. The present plant cost only $10,000. The plan of operation costs $4.50 less per million gallons than any other proposed plan. The exact and extensive chemical and bacteriologic data added to the physical properties proved conclusively that a water of a high degree of potability was being secured. The removal of suspended matter was shown to average 96.9 per cent., while the bacterial removal averaged 95 per cent. in many weekly analyses, showing an efficiency of 99 per cent. Mineral analysis showed that there was nothing left in the water that could be inimical to health. The death rate from typhoid during the last year has been materially lowered, but owing to the limited time of operation of the present system no deductions from this point of view were insisted on. Reports from engineers and manufacturers showed that the treatment given the St. Louis water supply was highly satisfactory to their interests. The author claimed that, with contemplated changes of a minor character, the expense of operation would be lowered and the efficiency increased.

Mr. F. S. Hollis, New Haven, Conn., described a practical test of the copper sulphate method for the removal of germs from water supplies.

Report on Purification and Preservation of Water Supplies.

Mr. George W. Fuller, New York, stated that the principle of the use of sulphate of copper in treating water supplies was not a new one, as it had been used for thousands of years. With reference to filtration, he said the number of cities in the United States with a population of 25,000 now using the filtration plan was about 8 per cent.; those which had filters under construction, 11 per cent.; those in which filters had been authorized, 20 per cent., and those in which filters were being considered as necessary, 31 per cent. Statistics and arguments were advanced in favor of filtration as a method of purifying water supplies of cities.

DISCUSSION.

Dr. Frank Warner, Columbus, Ohio, stated that more attention should be given to the better protection of the watershed. This feature was either neglected or overlooked in connection with modern purification plants. This was especially true of pollution near the purification works, and the water should be delivered to the purification plant in as pure condition as possible before purification.

Mr. H. W. Clark, Boston, said that since the introduction of filtration at Lawrence, Mass., the city had increased in population from 45,000 to 75,000, and the percentage of deaths from typhoid fever had been materially reduced.

Report of Committee on Disinfection and Disinfectants.

Prof. F. C. Robinson, Brunswick, Maine, reviewed the more important literature on the subject during the past year, especially in the foreign journals. As to experiments on disinfecting railway cars by formaldehyd, the results showed that it was practically impossible to completely sterilize all parts by the vapor of formalin, but still the experimenters think that it is the most practical thing to employ for that purpose. They recommend 1,000 c.c. of the liquid formalin to each car, but, of course, the foreign cars are much smaller than those in use in the United States. As to chemical methods for sterilizing drinking water, V. B. Nesfield recommends the use of tablets made from 1½ grains bleaching powder and ½ grain sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes, or better, ten. He removes the paste of chlorin by adding a tablet of sodium sulphite. He claims that by such use the most foul river water can be made free from disease germs and palatable. The report called attention to the danger of the spread of infectious diseases through library and school books. It was recommended that the danger should be met as far as possible by notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed and, in addition, submitting books much used to the action of formaldehyd vapor once in a while. Remarkable results have followed the occasional use of weak solutions of formaldehyd on the floors of schoolhouses—solutions so weak that they gave no disagreeable odor. Infectious colds and other dust-borne diseases were much lessened among the scholars. The committee believes that the occasional use of such solutions on floors and surfaces in dwelling houses, as well as in public buildings, would do a great deal toward improving public health.

Sulphate of Copper with Lime to Destroy Mosquito Larvae.

Dr. A. H. Doty, New York, considered, first, the use of copper alone or in combination with lime for the destruction of mosquito larvæ; second, as a deodorant, and, third, as a disinfectant. He stated that in the destruction of mosquito larvæ and as a deodorant the use of copper in combination with lime is more effective than when used alone. This mixture destroys mosquito larvæ by rapidly removing from the water in which they were contained the organic matter or nourishment on which they depended for life, and this result is not due to a toxic effect produced by the copper or lime. Therefore, the range of usefulness of these agents, either alone or in combination, in the destruction of mosquito larvæ is limited. As to copper and lime as a deodorant, he believed it to be the most valuable and practical agent we possess for this purpose. Its action as a deodorant is rapid and permanent. It is practically harmless, cheap and easily made, and seems to comply with the requirements of a typical deodorant. Its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. Little can be said regarding the germicidal value of copper at the present time.

The Disinfection of Schoolbooks.

Dr. Walter D. Green, Buffalo, N. Y., stated that an examination of the public school books early in 1902 revealed the fact that they were filthy, especially those used by the lower grades. These books were furnished gratuitously by the city, and consequently there existed a tendency to use them until they were literally in pieces—a period covering several years. It was thought that these filthy books, worn and handled by so many diminutive individuals, might be, and probably were, a source of contagion, and it was decided to disinfect them. The books were placed on their edges, with covers widely separated, on tables and shelves in tightly sealed rooms. Formaldehyd gas was liberated in the room, six ounces of a comparatively fresh commercial formalin being used for every 1,000 cubic feet of air space, the vaporization being induced by the use of wood alcohol being burnt in a receptacle containing the formalin. Bacteriologic examinations were made of the soiled leaves of books both before and after the disinfection, and it was found that about 85 per cent. of all organisms were killed. For the three years immediately preceding this schoolbook disinfection—that is, 1899, 1900 and 1901—the average number of cases of scarlet fever reported yearly to the health department by physicians in Buffalo was 875, while the average yearly deaths for the same time were 36. For the three years following such disinfection the average number of cases reported yearly was 528, and the number of deaths yearly for the same time was 18.

The Sources of Infection.

Dr. Charles V. Chapin, Providence, R. I., after pointing out various sources of infection, directed attention to isolation and disinfection. He said that it was perfectly plain, if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, but it would be exterminated. If we could only control one-half, one-quarter, or one-tenth of the foci of infection, it was equally clear that the disease would never be exterminated, and it was not even certain that it would diminish. The relation of probable success to the efforts made must decide the extent of those efforts.

Sanitary Conditions of Havana and Further Requirements for Their Improvement.

Dr. Erastus Wilson, Havana, said that the prevailing annual mortality in the city of Havana previous to American intervention—1898-1902—approximated 40 per 1,000. The general cleaning up of public places and rigid house-to-house inspection and abatement of insanitary domestic conditions, together with filling the puddle holes and irregularities in the macadamized streets, with the prohibition of the ejection of domestic wastes into the by-ways, obtained immediate and notable reduction in the mortality rate in the city. The continuation of these sanitary measures reduced the type of mortality and morbidity to about 50 per cent. of its former rate, besides beautifying the city and making it infinitely more attractive for residents who were interested in health and general culture. The author called attention to a further requirement of sanitary science, which was radical and indispensable, namely, a modern system of sewers of proper section, regularly graduated in size and declivity from their incipience to outfall, impermeable throughout and connected with the closets of every house by lead-jointed, cast-iron pipes, uniting them to the sewer outside the domicile.

The following resolution was adopted:

Resolved, That the association congratulates the civic authorities, the physicians and the people of Havana in general on the gratifying improvement made in its sanitary condition, and especially on their work in freeing their beautiful city from any danger from that once-dreaded scourge, yellow fever, by their persistent and skillful campaign against the yellow fever mosquito. We are especially gratified also that they do not propose to rest contented with what has been done, great as it is, but have already planned other sanitary improvements of great importance, including an efficient system of sewerage, which we wish them godspeed in carrying out at the earliest practicable moment.

Bacillus Tuberculosis in Man and Animals.

The report of this committee was read by Dr. V. C. Moore. He said that since the last meeting several important pieces of work had been reported. These were detailed in the report. The committee carefully compared the disease set up in the bovine animal by material of human origin, and so far it had found the one, both in its broad, general features and in its wider histologic details, to be identical with the other. It had so far failed to discover any character by which it could distinguish one from the other; and its records contained accounts of the postmortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis. At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, a third instance of infection with the bovine bacillus has been found. The patient was a child not quite 2 years old, that had been nourished the greater part of its life on cow's milk bought from the most convenient store. It developed a large abdominal tumor, which proved on autopsy to be a tuberculous new growth, involving the mesenteric glands and intestine. The lungs were not involved. Cultures were obtained from this tumor, which had the cultural and microscopic characteristics of the bovine bacillus, and proved fatal to a calf weighing 211 pounds in thirty-five days. The committee did not yet feel able to say with what frequency bovine infection of man took place, but it was evidently not a rare occurrence. The committee considered that the evidence going to show that such infection did take place was absolutely conclusive, and that it not only justified, but made imperative, the passage of stringent laws by municipal and state authorities for the suppression of tuberculosis in cattle, and the prohibition of the sale of meat and milk from tuberculous animals.

Report of the Committee on Tuberculosis.

The practical measures recommended years ago were since tested in part, and so far as tested were found of use. These recommendations were:

1. The notification to and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.
2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.
3. The establishment of special hospitals for the treatment of tuberculosis.
4. The organization of societies for the prevention of tuberculosis.
5. Government inspection of dairies and slaughter-houses and the extermination of tuberculosis among dairy cattle.
6. Appropriate legislation against spitting into places where the sputum is likely to infect others and against the sale or donation of objects which have been in use by consumptives unless they have been thoroughly disinfected.
7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins, which have been occupied by consumptives before other persons are allowed to occupy them.

In addition to these specific recommendations, the committee urged on the public the importance of better housing of the poor in their places of abode and in their places of occupation; better control of the food supply at large, and more definite instructions in the schools and on the platform of diet for the working people. The home and workshop were really the centers from which the disease was distributed, and they at the same time were strong predisposing causes of the disease by reason of their unhealthiness. Bad and adulterated food and improper selection of food by the individual were also strong predisposing causes by lowering vitality. The committee suggested that every member act as a committee of one in his own home to help organize a campaign against this disease.

DISCUSSION.

DR. WALTER D. GREEN, Buffalo, N. Y., said that there were two things of special interest in combating the disease, one of which was notification of cases, and the other thorough disinfection of houses in which the disease occurred. In the city of Buffalo every house in which a case of tuberculosis develops is thoroughly disinfected. This has been the practice in that city for the last five years. A card index is of vital importance in keeping track of cases of the disease. The people should be educated in regard to the prevention and control of the disease. Pamphlets giving directions how to keep from getting the disease were printed in Buffalo in German, English, Polish and Italian. Directions were also given as to what to do when people contracted the disease.

DR. FRANK WARNER, Columbus, Ohio, said the reporting of cases of tuberculosis is an important factor in the prevention of the disease, but it is only the first step. Literature should be placed in the hands of families in which the disease developed. Information regarding the disease should also be published and put into the hands of men working in stores and shops. Articles relating to the disease should be published in the daily newspapers for the instruction of the public. The disinfection of houses after deaths had occurred in them is of great importance in order to destroy the germs of the disease. Testing for tuberculosis in cattle by tuberculin has proved a very important thing. At the Ohio State University there is an agricultural and dairy department, so that every cow is constantly tested with tuberculin for tuberculosis, and whenever the disease is found that animal is withdrawn from the herd.

DR. R. H. LEWIS, Raleigh, N. C., endorsed the position taken by the previous speaker. In his state pamphlets concerning the disease and its prevention are placed in the hands of superintendents of public instruction and of school teachers for distribution.

DR. MARCUS HAAS, Memphis, Tenn., referred to the thorough system of dairy and milk inspection in Memphis, from which gratifying results have been obtained.

DR. W. C. CHAPMAN, Toledo, Ohio, said that sanitarians should not demand too much of the physician, for in doing so they undo the benefit which they might otherwise receive. Physicians are reluctant in reporting cases of tuberculosis to city health departments, on account of the protests of families in which the disease occurs.

DR. MANUEL S. IGLESIA, Vera Cruz, Mexico, described the present hygienic conditions of that city, and expressed the hope that at no distant day this port would be one of the healthiest to be found.

DR. ARISTIDES AGRAMONTE, Havana. pointed out the practical utility of a medical board to aid local sanitary authorities in the investigation of infectious disease.

Diphtheria Infection in Minnesota.

DR. F. F. WESBROOK, Minneapolis, stated that in the work of the Minnesota State Board of Health the problems had arranged themselves into three main groups: First, the work of dealing with diphtheria as it occurs in family life, where one or more cases appear in a household; second, where infection was widespread and the day schools had to be closed; third, where infection gained entrance into institutions in which children or other inmates were housed, employed, taught or confined, and where great opportunity for the spread of infection was present. He said it was apparent that:

1. An adequate laboratory staff and equipment are essential, since only by thorough laboratory examination can the presence of possible danger be determined.
2. It has been found convenient to utilize institutional laboratories when available, as the members of the laboratory staff of the State Board of Health can examine cultures on the spot when there is urgent need of haste.
3. The repetition of examination of both nose and throat specimens is advisable in all cases, and especially when suspicious bacilli are found.
4. Every effort should be made to prevent the exchange of nose and throat bacteria between individuals until it is definitely known whether they are infected or not. In infected individuals the bacilli will be eliminated more quickly the greater the approximation to individual isolation.
5. It is unsafe to place hitherto uninfected individuals who develop sore throat with clinical cases of diphtheria.
6. Executive action must be taken on the basis afforded by the laboratory; therefore, it is essential that these two branches be kept in the closest touch, or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge.
7. That such methods give satisfactory results and are entirely practicable, has been shown in the experience of the Minnesota State Board of Health under conditions which presented the greatest possible variation. Three epidemics had thus been suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement were employed in the housework of the institution, where the babies were left in charge of different mothers at different times, and where also the almost daily admission of fresh inmates added to the opportunities for the introduction of infection.
8. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of flora of the nose and throat.
9. In institutional and school life the more independent the individual and the greater the facilities for individual infection, the greater the freedom from diphtheria infection.

DR. SAMUEL H. DURGIN, Boston, read the report of the committee on the infectious period of communicable diseases.

Social Hygiene.

DR. ADOLPHO OLIVA, Guadalajara, Mexico, pointed out the effects of dress on the system. He also discussed the various forms of dress. He said that variations in temperature of the system, with the climate, seasons, age, constitution, and the conditions of health or of disease fully demonstrated the physiologic necessity of dress.

Yellow Fever in Mexico.

DR. E. LICEAGA, Mexico, described how houses that were infected with the disease are disinfected. As soon as a case of yellow fever is found, the patient is isolated and the mosquitoes and larvæ are destroyed. The Vera Cruz campaign against yellow fever has been very successful, in that there has not been any epidemic of the disease in that city for the last six months. He cited one case to prove, without doubt, that yellow fever is transmitted by mosquitoes alone.

Control of the Milk Supply in Large Cities.

DR. WILLIAM H. PARK, New York City, chairman of a committee, read a report on this subject. The topic was considered under three heads: 1. The proper conditions at the farms. 2. Proper conditions during transportation of the milk, and 3. Proper conditions at the delivery station and in the case of the milk in the homes. Until recently the conditions at the farms have been largely overlooked by the health officers of great cities, on account of the practical difficulties and the expense. The milk commission appointed by the Medical Society of the County of New York has undertaken to assist both the consumer and producer by fixing a standard of cleanliness and quality to which it could certify, and by giving information concerning measures needful for obtaining that degree of purity. The most practical standard for the estimation of cleanliness in the handling and care of milk is its relative freedom from germs or bacteria. Milk must not be sold as certified more than twenty-four hours after its arrival in New York City. The report discussed the duties and requirements of dealers in milk, the barnyard, the stable, the condition of the cows, the milkers, helpers other than milkers, small animals, the milk itself, the utensils for holding milk, as well as the examination of the milk and dairy inspection.

DR. GONZALO AROSTEGUI, Havana, discussed the importance of good quality and careful distribution of the milk supply.

Infantile Feeding by Nurses.

Dr. Alfonso Pruneda, Mexico, said it is necessary always to advocate the need of maternal lactation, but in the event of this being found impossible, we should not hesitate to adopt some other methods. Avoid the employment of wet nurses, who, as the writer pointed out, present many objections, but rather make use of sterilized milk, which, when properly and methodically used, would fulfill its purpose, and thus save the lives of many children who would under other conditions perish and increase the infant death rate.

Production of Animal Vaccine.

Dr. W. F. Elgin, Glenolden, Pa., described experiments and detailed his experience in the production of animal vaccine. The author pointed out that: 1. Virus exposed to cold below O. C. might remain active for an indefinite period, certainly for several years. 2. When it is removed from cold storage, it will retain its activity for a considerable period under conditions that usually obtained commercially. 3. When glycerinated lymph is exposed to O. C., or below, the destruction of germ life through the action of the glycerin is practically at a standstill. 4. The rapidity of the elimination of the contained bacteria depends on the temperature above 10 degrees C., in which the virus is stored. He showed that the life of the average commercial vaccine is only three months in winter, and in August and September only about one month. Two lessons might be learned from this: First, one should not vaccinate in the summer season unless compelled to do so by the presence of smallpox. Second, when compelled to vaccinate at this season, one should order the vaccine direct from the laboratory, and use it at once without regard to the dating on the package.

The author stated that dried vaccine in any form was short-lived, and not nearly so reliable as the glycerinated form. The most active virus is to be obtained from the deep curetting.

DISCUSSION.

Dr. F. P. Bernaldez, Mexico, cited facts and arguments tending to demonstrate the superiority of humanized over animal vaccine for the prevention of smallpox. He claimed that persons who were vaccinated and revaccinated with humanized lymph enjoyed a longer immunity, according to his observations, and in Mexico he had never seen a case so vaccinated attacked by smallpox. His practice has taught him that in such persons revaccination did not take, or at most assumed the appearance of false vaccination, thus proving in his opinion that the individual was not susceptible. He urged that vaccination be practiced by physicians of experience in order to avoid the possibility of transmission of disease.

Dr. Vincente de la Guardia, Havana, spoke of the necessity of vaccination and revaccination of individuals who had suffered from smallpox. He said that in most countries there is no vaccination requirement for individuals who had had smallpox. He had had the opportunity of vaccinating and revaccinating 1,599 persons, members of the police department, custom house inspectors, port policemen, persons confined in jails, males and females, etc. Of this number, 328 were branded with the smallpox trademark, and of 47 vaccinated for the first time in their lives, 17 were successful in taking. Two hundred and sixty-three were revaccinated, in 48 of whom it took successfully, giving a total of 65 successful vaccinations. The total result of the 328 who had had smallpox previously corresponded approximately to over 20 per cent. of the total figures. He urged that, as a general rule, all individuals, whether they be ex-victims of smallpox or not, should be vaccinated or revaccinated, as the case might be.

Stegomyia Fasciata.

Dr. Fernando Lopez, Mexico, detailed some experimental studies on the acclimatization of this germ. The experiments seemed to prove that the *Stegomyia fasciata* could live, bite, and breed for at least three generations in Mexico City, notwithstanding the fact that this city has an altitude of more than 7,300 feet above sea level.

(To be continued.)

ILLINOIS STATE ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

Organized Jan. 19, 1905, at Chicago.

This meeting was attended by a large number of physicians, heads of charitable organizations, and professional nurses. The primary objects of the association are to impress the public with the importance of having a state sanatorium where consumptives may be properly treated, and to enact a law to compel cities, towns and villages to keep records of sufferers from the disease and of those who die from it, so that houses may be properly fumigated and disinfected. It is expected that an appropriation of at least $250,000 will be asked from the legislature. Governor Charles S. Deneen was made honorary president, and Dr. Edmund J. James, president of the University of Illinois, acting president, with Dr. Arnold C. Klebs of Chicago as secretary. The association voted in as affiliated branches of the main organization the Visiting Nurses' Association and the United Hebrew Charities of Chicago.

Dr. William E. Quine, who called the meeting to order, referred to the lack of general information on the possibility of curbing consumption, to the infection from sputum, and to the lax enforcement of local laws on this and relative subjects. While every case of tuberculosis can not be cured, it is safe to say that 75 per cent. of the cases in the incipient stages, if properly attended to and treated, can be absolutely cured. He referred to the tent colony in Ottawa, and stated that while it does great work, the accommodations are limited.

Dr. Arnold C. Klebs said that Illinois is far behind other states in the matter of protecting the public against the ravages of consumption. While the number of consumptives in the state is variously estimated from forty thousand to fifty thousand, there are only 563 beds for such patients in the whole commonwealth. He spoke of what Canada is doing in the way of furnishing hospitals for the victims of the disease, and said that the dominion in some respects is ahead of this country. He advocated the formation of societies in every village, town, and city in Illinois, for the intelligent study of the question and for co-operation with the state body.

Dr. William A. Evans said that while Chicago and other cities and towns have ordinances forbidding expectoration, these laws are not enforced, and disease is allowed to be spread broadcast. He pleaded for instruction to the public regarding better living conditions, and concerning more satisfactory conditions in factories and stores.

Dr. George W. Webster said that the Illinois State Board of Health is distributing literature on the prevention of consumption. More than 75,000 pamphlets have been sent out, and there is still a call for them from railroads and other corporations and business firms. Leaders in this movement have become convinced that Illinois should follow the lead of Massachusetts, New York and Rhode Island in the establishment of a state sanitarium. Investigation reveals that there are constantly as many as fifty thousand consumptive patients in Illinois, while Chicago alone averages about twenty thousand. Each year about one-fifth of the victims die, the number in Chicago last year being 3,500, so far as known. It is learned that many cases of consumption are not reported, and that physicians in some cases say the patient died of pneumonia. Taking Chicago's mortality from consumption in 1000 for a basis, figuring the loss of the individual's service per day at the low rate of $1.00, and expenses and maintenance, nursing and treatment at $1.50 additional, it is found that the cost to the city of Chicago caused by the death in one year of 2,682 tuberculous persons amounts to the startling sum of $2,011,500.

The executive committee consists of the president and secretary of the association, ex-officio, Dr. Wm. E. Quine, Dr. J. W. Pettit, Dr. George W. Webster, Ernest P. Bicknell, and Sherman C. Kingsley. The central committee comprises Drs. Wm. E. Quine, Frank Billings, N. S. Davis, Joseph E. Milligan, N. B. Delamater, N. A. Graves, George W. Webster, W. A. Evans and Robert H. Babcock, and Mr. Ernest P. Bicknell.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held Dec. 5, 1904.

The President, Dr. L. L. McArthur, in the Chair.

Actinomycosis.

DR. ARTHUR DEAN BEVAN referred, first, to the early history of this disease, saying that von Langenbeck first noticed the sulphur-green bodies of actinomycosis as early as 1845, and that Bollinger recognized the ray fungus in lumpy jaw in cattle. Israel, in 1878, recognized the ray fungus as the cause of the disease in man. Belfield first recognized the ray fungus in lumpy jaw in cattle in this city, and Murphy reported the first case of actinomycosis in man in this country in 1883. Clinically the disease appears in four different forms, with four different groups of infection: 1, The head and neck actinomycosis, with infection from the mouth and pharynx; 2, actinomycosis of the chest through the respiratory tract; 3, abdominal actinomycosis, with infection probably always through the alimentary canal, possibly, however, in rare instances, through the female genital organs; 4, actinomycosis of the skin. The lymphatic glands are seldom involved, but he reported one case in his group of cases in which there was invasion of the lymphatics. Dr. Bevan reported cases illustrating each form of the disease, and showed numerous microscopic slides.

DISCUSSION.

DR. JOHN B. MURPHY said that an important feature brought out by the essayist was the demonstration of lymphatic involvement. In none of the cases that came under his observation was it shown that the lymphatic glands became involved, or that the infection was transmitted through the lymphatic chain and arrested in the lymphatic glands. Another point was the enormous infiltration that occurred around a small focus of suppuration. This is one of the first things that attracted Dr. Murphy's attention in the first case of actinomycosis he saw, in 1883. This was a typical case of actinomycosis of the jaw, in which the infiltration involved the neck to the extent of an inch or more on each side. There was apparently a small fluctuating focus. When the involved area was opened a number of yellow bodies escaped. These appeared molded. They were neither round nor oval. The infiltration described by Dr. Bevan in his case of actinomycosis of the pelvis was one of the classical conditions of the disease in the peritoneum. While the disease affects all the tissues, it elects fatty tissue, involving skin, muscle or bone, lifting its periosteum, attacking the periosteum, or sometimes attacking the fatty tissue close to the periosteum without attacking bone. Dr. Murphy's first, second and third cases recovered, but the fourth, one of peritoneal actinomycosis, terminated fatally. There was no perforation of the stomach wall nor of the large intestine, but there was infiltration of the fatty tissue on both sides, the micro-organisms having passed up into the diaphragm and beneath the surface of the liver. He has also seen two cases of actinomycosis of the appendix. In the first the actinomycotic process was confined practically within the appendix. The appendix was extirpated and the patient recovered. The second case pursued an entirely different course, although death has not yet occurred.

DR. E. WYLLYS ANDREWS said that the large percentage of recoveries referred to is quite contrary to his own experience. Most of the cases he has seen have either died or, if they were living, there is an increasing actinomycotic mass in other parts of the body. He recalled one man who has a mass in his chest, and who, he thinks, is going to die. An analysis of all the cases of actinomycosis of the alimentary canal would scarcely disclose one involving the stomach, and the probabilities are that the acidity of the stomach prevents the active generation of the germs there. A comparatively small number are found in the upper intestine. In nearly one-half of all cases reported the actinomyces are found in the cecum and in the appendix. He has not seen a case of actinomycosis involving the rectal region.

DR. M. L. HARRIS has seen during the past year three cases of actinomycosis, which apparently were hematogenous infections. The first case was in a country boy, who was admitted to the hospital with a slowly-developing swelling in the prevesical space. It had the characteristic hardness. He opened the mass and obtained a small amount of pus. Inoculations from the pus gave a pure culture of *Staphylococcus pyogenes albus*. In the first pus which was evacuated no granules were recognized, but on the dressings, a few days later, the characteristic granules were at once recognized, and when examined microscopically they were demonstrated to be actinomyces. The case progressed, sinuses and fistulæ were formed about the abdominal wall and into the lateral wall of the pelvis. The boy was operated on several times, these tracts thoroughly cleared out, and during the operations the abdominal cavity was opened, because the speaker was suspicious of a primary intestinal origin. The abscess did not originate in the appendix, nor could he find any point of the intestinal tract that was involved. He was unable to explain how the infection reached the prevesical space, except through the blood. The patient was subjected to all the recognized treatments for actinomycosis. Iodid of potash was given internally continually and interruptedly. He was given *x*-ray treatment very thoroughly, but in spite of all treatment he became progressively worse, and after a period of several months died. A peculiarity in this case was the very marked reduction of hemoglobin. The red cells were not reduced in number, but the hemoglobin was reduced to a low point before death. Dr. Harris said that all three cases seemed to be instances of hematogenous infection, the organisms having been carried in through the blood, as there was no local point of infection, so far as he could determine.

DR. A. J. OCHSNER said there are a great many cases of actinomycosis in Chicago and its vicinity, although most of them have not been accurately diagnosed. He is almost never without a case of actinomycosis. He has one under treatment at the present time. He recalled half a dozen cases in which the face and neck were involved; one in which the larynx was affected; in a number the abdomen was involved; in one the eighth rib, and in others the appendix. He has had two or three cases of actinomycosis of the lungs. He believes surgeons should follow the method of veterinary surgeons if they wish to succeed in treating this disease. In late cases of actinomycosis in cattle the veterinary surgeon has the animals killed. He never tries to cure a late case of this disease in cattle. In the early cases, however, an effort is made to remove the entire mass by thorough curettage, followed by the administration of large doses of iodid of potash. Veterinary surgeons give a large quantity of iodid of potash for several days in succession and then they interrupt its use, giving the spores time to develop into ray fungi, after which they repeat the dose for a day or two, then withdraw it for a day or two again, repeat it again, and so on, and in cases where the actinomycotic process is localized the cattle recover. Actinomycosis in the human being should be treated on the same principles. About eight or nine years ago the speaker followed the method of giving iodid of potash in increasingly large doses, but in several cases in succession there was apparently no effect on the disease until he reached the dose of a dram three times a day, and then the progress of the disease became arrested. His first case impressed him with the importance of giving large doses of iodid of potash. It was a case of actinomycosis of the scalp. The disease burrowed and burrowed, and every week or so he found it necessary to scrape the scalp and apply every remedy he could think of, without much improvement. However, when he reached 60 grains of iodid of potash three times a day the disease was arrested. The next case he had acted in a similar manner, and since then he has made it a rule to give 90 grains of iodid of potash in a half pint of hot milk at 2 in the morning, 2 in the afternoon and 10 at night, for as many days as the patient can stand it. After a week it is withdrawn for some days, when it is repeated for three or four days, withdrawn again, and later repeated once a month. The reason why he repeats iodid of potash once a month is that in one of his fatal cases he did this for a time and the patient was apparently well, but two years later the patient had a recurrence and died of the disease. A circumscribed encysted abscess was found at autopsy in the lower end of the right pleura.

Dr. L. L. McArthur reported the case of a young woman, very fond of golf, who frequently was rebuked by her husband for chewing hay while playing golf. She developed actinomycosis of the alveolar process, which required three or four months' treatment by a dentist before it healed. Nine or ten months later she began to have pain in the right iliac region, and this pain being of a rather colicky character, she consulted her family physician, Dr. Carey, who, feeling a mass there, and noticing that she had elevation of temperature, sent her to Dr. McArthur's service at St. Luke's Hospital, believing it to be a probable appendiceal abscess. Dr. McArthur concurred in this diagnosis and advised operation. On opening the abdomen a tumor was found in the ileocecal region, involving the appendix, ileum and cecum, for a distance of four or five inches on the cecum. The tumor in its clinical aspect, although having no miliary bodies on it, seemed to him to be a hypertrophic tuberculosis, and on that basis, with the consent of the family physician, he made a resection of the entire ileocecal region, implanting the resected ileum in the side of the hepatic flexure of the colon. On lifting this mass up from the iliac fossa a few drops of pus were seen on the fascia covering the iliac muscles. This was mopped up, drainage provided for and the wound closed. The wound healed after a few weeks, the patient left the hospital, and for three months was quite well, when she began to have a cough and high temperature, with chills and night sweats. During his absence from the city she was seen by his assistant, Dr. Hollister, who considered the case—although he was unable to demonstrate tubercle bacilli in the sputum—one of acute tubercular trouble, the patient having lived in the house of a patient who had died a few months before of tuberculosis. On Dr. McArthur's return he saw her and found a tender area, with an enlargement in the neighborhood of Spigelius' lobe of the liver, and considered the condition one of hepatic abscess with burrowing through the diaphragm. He urged operative interference. The husband refused to have any operation performed until she had become extremely run down and had a temperature varying from 103 to 106 F. for three or four weeks. The patient was brought to the hospital, an incision was made over this area, and he found an abscess which had perforated the posterior sheath of the rectus muscle, and in which were then to be seen for the first time the typical granules, and the nature of the case became clear. The patient lingered along for about two weeks and finally died. A careful postmortem examination was made by Dr. Hektoen and a very thorough report of the case was made. In the sputum there were found the typical leptothrix-like threads, but never any suspicion was had of granules. In the stomach abscess opened there were typical granules to be found, and from them cultures were made which proved characteristic, so that here was a person in the habit of chewing grain and hay, who had disease of the jaw, who had a hypertrophic actinomycotic infection, which often is indistinguishable from tuberculosis, who recovered from that and later developed hepatic abscesses, with perforation of the diaphragm. Postmortem examination showed multiple stomach abscesses burrowing into the diaphragm and miliary abscesses along the bronchi.

CALIFORNIA ACADEMY OF MEDICINE.

Meeting held Dec. 27, 1904.

Dr. Dudley Tait in the Chair.

Unilateral Pulsus Paradoxus.

Dr. A. W. Hewlett exhibited a patient presenting a one-sided pulsus paradoxus. About eighteen months previously he had suffered from an acute illness, at the close of which the left side of his chest was noticed [illegible] be much smaller than the right side. At the present time the air enters only the upper front of the left chest, the remainder of this side being much retracted, flat on percussion and without breath sounds. The left pulse is normal, showing on deep inspiration a slight quickening accompanied by a slight diminution in the size of the individual beats. On deep inspiration the right radial pulse disappears entirely and does not return as long as the position of deep inspiration is maintained. If the right shoulder is passively elevated, however, the pulse does not disappear on deep inspiration. The brachial and axillary pulses disappear with the radial, but the subclavian above the clavicle continues to pulsate under all circumstances. The artery is, therefore, pressed out as it crosses beneath the clavicle, possibly between the clavicle and the first rib or by the fasciæ.

Dr. Ophüls suggested that the disappearance of the pulse might be caused by an inspiratory dragging on the heart or blood vessels by adhesions and that this might cause a kink in the subclavian artery as it crossed the first rib.

An Epidemic of Diphtheria at Stanford University.

Dr. R. L. Wilbur reported his personal experience in the recent epidemic of diphtheria at Stanford University and the neighboring town. The origin of the epidemic could not be definitely traced. Of the 43 cases which came under his observation, in four the infection involved the larynx; in three the mouth; in one the nose, and in one the conjunctiva. No deaths occurred and no intubations were necessary. It was often possible to make an early diagnosis by the use of a throat mirror and probe, thereby discovering small exudates on the tonsils which might otherwise have been overlooked. Cultures were made and in no case was a positive diagnosis made until the cultures were positive. Subnormal temperatures and slow pulse rates were frequent in this series. All patients with but one exception were treated with large doses of antitoxin, 4,000 to 36,000 units being given. The initial dose was 4,000 units, and this amount was repeated within six to eight hours unless marked improvement had followed. The results of the antitoxic treatment were often immediate and most striking, so much so that the correctness of the diagnosis might have been doubted in some cases had no cultures been made. Of 287 persons exposed to the disease and who received prophylactic doses of antitoxin, only one developed diphtheria and he had received only 500 units, whereas 1,000 were usually given.

DISCUSSION.

Dr. G. H. Evans approved of large doses of antitoxin. He said that since the introduction of antitoxin he had noticed many more rashes accompanying diphtheria, and believed that these were due to the use of the new treatment.

Dr. Wilbur stated that he believed that the rash frequently resulted from the antiseptics added as preservatives to the serum. He has noticed that the serum put up by certain manufacturers seems more liable to cause rashes than that put up by others.

Abortive Treatment of Gonorrhea.

Dr. George Gross reported a case of gonorrhea which was aborted by the use of Engelbreth's method. The patient was seen three days after coitus and gonococci were demonstrated in the slight discharge. The anterior urethra was irrigated with 500 c.c. of a .5 per cent solution of silver nitrate under a pressure of 1.25 meters, and the fossa and meatus were swabbed with a 3 per cent. solution of the same salt. Six hours later the irrigation was repeated, using a .2 per cent. solution of silver nitrate. In the pus examined six hours after the first irrigation no gonococci were found and they remained permanently absent. The discharge had ceased entirely by the end of four days. The treatment caused some pain, but less than one would expect.

DISCUSSION.

Dr. R. L. Wilbur *said that* there was danger of doing harm by the use of abortive treatments for gonorrhea.

Dr. Gross replied that these dangers were *minimized* by the use of large quantities of a *relatively* dilute solution, administered under a known pressure, thus eliminating the danger of having the irrigating fluid enter the posterior urethra.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

(*Continued from page 242.*)

NOTABLE MEDICINAL TREES OF INDIA.

On landing at Tuticurin I came face to face with two trees that I never lost sight of on my long railway journey—the palmyra palm and the nim tree. The palmyra palm (*Borassus flabelliformis*) is a hardy, noble tree, and attains a height of 100 feet. The base of the stem is large and gradually tapers into the stem proper, which has a uniform thickness up to the very crown. The bark is almost black and indented with circular rings. The crown of fronds is small compared with the size of the tree. In southern India the leaves are used for roofing, and nearly all the trees have been pruned down to six or eight fronds. The pulp of the fruit serves as food. Enormous masses of sugar and toddy are produced in India from the sap which flows from incisions of the stalk of the unexpanded flowers. This tree is noted for its longevity, and trees 200 years old are by no means rare. The Mohammedans are supposed to be total abstainers, but not invariably so, as I learned from a little story related to me in India. A man who owned a number of these palm trees, and who had bled them for the purpose of supplying himself with the much cherished toddy, noticed that much of the precious juice disappeared mysteriously during the night. Not suspecting that the pilfering was done by human beings he poured aconite into the cuts into which the sap accumulated. The next morning in going for his toddy he found to his utter astonishment two followers of the prophet dead near the tree and several more very sick in an adjacent thicket. For obvious reasons a judicial investigation was not applied for. The leaves of this palm have been used for centuries as writing paper.

The nim tree (*Melia azadirachta*) is one of the most beautiful and useful trees of India. It attains a height of 50 feet, has a short, black barked stem, strong, widely spreading branches and a dark, fresh green, rich foliage of long feathery leaves. At Jaipur I saw a boy climb one of these trees, and with pruning scissors sever enough of its leaves to feed a flock of sheep which had gathered around the base of the tree. anxiously awaiting the expected fodder. The leaves have a great reputation as a remedy for dysentery and malaria. Many wonderful stories have I heard concerning the curative powers of a decoction of the leaves of the nim tree. This popular reputation is sustained by the medical profession.

The tamarind (*Tamarindus india*) is a magnificent, large, expansive tree. It is one of the largest trees of southern India. An immense tamarind tree is in the court of the monkey temple at Benares, and it is in this tree that the monkeys take their gymnastic exercises. The monkeys are anxiously awaiting the ripening of its fruit. The acid pulp of the long pods forms the medicinal tamarind, rich in formic and butyric acid, irrespective of its other contents, cold made into a syrup. it can be kept for preparing a palatable acidulous drink.

The bábul or gum arabic tree (*Acacia arabica*) is a very common tree in India. It is a small tree and is used sometimes for thorny hedges. Occasionally the stem attains a circumference of 10 feet. It furnishes one of the best kinds of gum arabic for medicinal and technical purposes. Cattle are fond of its leaves. The wood is hard and durable, and the pods and bark are used for tanning. One of the most interesting trees in India, although without medical interest, is the banyan tree (*Ficus bengalinsis*). While at Calcutta I made a special pilgrimage to see the famous banyan tree in the Botanical Garden, six miles from the center of the city. A label attached to the stem of the mother tree bears the following legend: "This tree is about 135 years old; the circumference of its trunk, at about 5½ feet from the ground, is 51 feet, and of its crown about 938 feet. It has 464 aerial roots actually rooted in the ground." The sight of this veteran of the Botanical Garden is inspiring. The daughter trees form a circular colonnade and their interweaving branches a roof under which a whole regiment of soldiers would find an ample camping ground. The mother tree shows signs of far advanced senile decay, but her offspring have gained an independent existence and will keep her memory fresh for many generations to come. Since I saw this wonder of the Indian forests I have learned that the banyan tree at Ahemabad is still larger and the largest in the world. Had I known this before I would have intercepted my itinerary at that ancient city.

For technical purposes, the most valuable tree in India is the teak tree (*Tectona grandis*). It is a superb timber tree. It sheds its very large leaves annually. Teakwood is held in the highest esteem by shipbuilders; for the backing of ironclad men-of-war it is preferred to any other wood; also for the panels of coaches and inside finishing of houses, and for various other select purposes. The wood is extremely hard and scarcely shrinks. This wood is sold in London at $75 per 50 cubic feet.

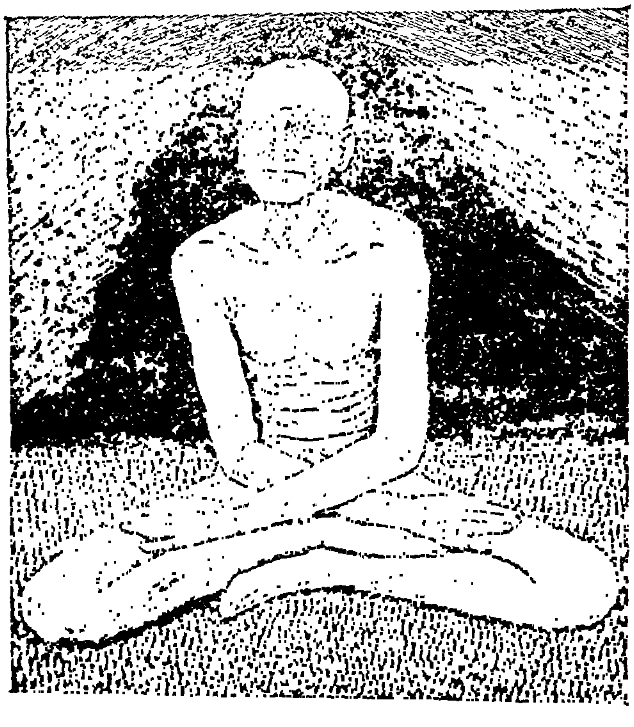

Fig 3.—Swami Bhaskara Nand Saraswati, the famous Ascetic of Benares.

The siris-acacia (*Albizzia lebbeck*) is a very common and beautiful shade tree. It produces also a good deal of useful gum. The blossoms are much sought by honey bees, as their pollen is rich in honey-producing material.

BENARES MONKEY TEMPLE.

Among the many things which interest the traveler at Benares is the Monkey Temple. Within the walled enclosure surrounding the temple is an immense tank which collects the rainwater. From the tank a series of wide stone steps lead to the famous temple. On entering the temple, we were met by the chief priest, Sree Swayam Prakashhashanand Maithila Auland Bag, the successor of the Benares saint recently deceased. His dress did not indicate his high Brahmin position. It consisted of a loin cloth and a few yards of yellow calico with which to obscure the left arm and a very limited part of the chest. His short-cropped, grizzly hair and beard did not add much to his clerical appearance.

The moment we entered half a dozen young priests who surrounded him howled at the top of their voices, how, how, how. I thought I had committed a blunder by entering the sanctuary in my mud-stained shoes. This was not the case. It was a priestly greeting and a call for the monkeys, which came running from all directions, knowing well that the call meant the arrival of a stranger who would be willing to part with a few small silver coins, with some of which the good priests would buy food for them which they expected to eat in the presence of the visitor. They had calculated right; their expectations were realized. These miserable, treacherous, thievish, filthy beasts occupy a high position as objects of worship by the Hindus. To maltreat a monkey constitutes, in their estimation, a greater crime than the killing of a coolie. The monkeys in this temple are the same as the herds of monkeys in and all around Jaipur. They are very large, gray, with a black face and a tail as long and as thick as a broom handle. In a few moments we were surrounded by a large crowd of these pets of the priest, with whom they are very familiar, but they mistrust the white man and remain at a respectable distance from him. They eagerly devoured the proffered food, roasted peas and small crackers. The majestic tamarind tree behind the temple was alive with monkeys of all sizes and ages. Veteran monkeys of doubtful age and baby monkeys on the backs of their mothers, were all equally anxious to be benefited by the liberality of the visitor, as visitors during this season of the year are of rare occurrence. There are more than 300 of these monkey gods in this temple.

A BENARES SAINT.

The priest to whom I have first referred is, as he claims, the legitimate successor to the Benares Saint, Swami Bhaskara Nand Saraswati. (Fig. 3.) He has the advantage over his predecessor in the greater length of his name. The saint, or, as his successor calls him, "Holy Sage," died a few years ago and I visited his plain tomb near the temple. He was for many years a familiar Benares character. His deep learning, plain manner of living and ascetic disposition made him prominent in the priesthood and an object of curiosity to the visitors. He was born in the year 1833. He was invested with the sacred thread when he was 8 years old. He married at the age of 12 but left no issue, although a son had been born to him. Soon after the birth of his child he left his home and wife and devoted himself to the study of Sanscrit, visited shrines and became known to all as a profound Sanscrit scholar, a philosopher and a real Yogi. His successor says of him: "His dignified mien and venerable face silenced the onlookers who had doubted that a man could learn and practice Yoga at such an early age." And again, "His soul penetrated into the very heart of Being, by seeing reality as it is. He was a philosopher to whom God was not merely the creator of this universe, its protector and guide, but the life of his life, the soul of his soul—his very self. Such a sage was the Swami Bhaskara Nand—calm, silent, majestic, immersed in the glory of his own soul." What an enviable record to leave in this world of sin and corruption.

HINDU CREMATION.

Sitting on the deck of a river rowboat and gliding down the sacred Ganges near its border on the side of the ancient city of Benares, we passed the principal temple. I saw a number of burning funeral pyres at the very edge of the turbulent, dirty stream. It was too late to see the whole process of cremation as practiced by the Hindus. It was at Agra that I was given an opportunity to become a witness of this funeral rite. On the way to the Taj Mahal we passed a small procession, following a corpse carried on a litter of dry bamboo sticks on the shoulders of four men. The corpse was covered with a cloth of bright colors, red being the predominating one. The whole procession was made up of men, 24 in number. Women never attend funerals. The procession moved in quick steps and the mourners chanted a monotonous dirge, repeating over and over the same words, which the guide translated into "The name of God is true." Wishing to profit by this opportunity to witness an open-air cremation, I abandoned, for the time being, the visit to Taj Mahal and followed the procession. The procession continued its march until the border of the Jumna River was reached, where the corpse resting on the bamboo litter was deposited on the ground. I learned that the body was the corpse of a married coolie woman, 25 years old. She was sick 15 days with a diffuse swelling of the face (erysipelas?), and had died at 5 o'clock in the morning of the same day. It was now 9 a. m. Her husband was working in a place in the country, 20 miles from the city, and knew nothing of her illness and death. The only relative present was a brother, a lad about 17 years old, who officiated at the ceremony. The people were evidently extremely poor, so economy had to be practiced in cremating the corpse. The men squatted in a group on the banks of the river, smoked and chatted, and nothing but the presence of the corpse and the materials for building a fire reminded us that we were in the presence of death. The young brother was the only one whose face was earnest and expressive of grief, but not a tear was to be seen. Wood is very expensive in India, ¼ pie a pound (1/16 of a cent), hence it was used sparingly in this cremation. About two armsful had been procured. A pile of round dry chips, each about the size of a soup plate, was to be the principal fuel. These chips are made of stable manure mixed with rice straw. In the soft state, they are attached to walls and the outside of houses, where they are dried in the sun, and are used extensively as fuel. They are the prototype of the "buffalo chips" of our western prairies. The ground was first covered with several layers of these chips over an area a little in excess of the width and length of the corpse; pieces of dry wood were then laid across. The body was then prepared by the brother; the highly colored cloth was removed; the face was wrapped in a cloth and was never exposed while the brother washed it with water dipped from the nearby Jumna. Next the glass bracelets were broken with a piece of wood. The body, in a cheap, well-worn calico dress, was placed on the layer of wood and, lastly, chips were piled on all sides and over the corpse. A small bundle of dry brush was then purchased, for four annas, and distributed over the sides and top of the small mountain of chips. A handful of rice straw was then taken from the litter, twisted into a torch, ignited by one of the old men, swung by the brother until it burned in a bright flame, and with this the dry brush was set afire at the head of the corpse. The breeze was in the right direction, and in a few moments the entire pile was ablaze, the chips caught fire and soon the odor of burning flesh escaped with the smoke. It was at this stage of the cremation that I was as anxious to leave as I had been at first to witness it. We left the mourning party jabbering, laughing, smoking and looking lazily and unfeelingly into the smouldering fire maintained by the chips. During our stay, the ashes of the two corpses previously cremated were thrown into the Jumna River. On a knoll overlooking the river a Brahmin priest. was perched, awaiting the funeral procession of a corpse attended by mourners who could pay him for his priestly functions. He did nothing for the poor young woman whose corpse was now being devoured by the smouldering fire furnished by the cheapest fuel. He did not have to wait long to assist in the happy incarnation of the soul of one of his faith. In returning to the city we met another funeral procession, chanting the same funeral dirge, but to outward appearances the mourners belonged to a higher cast. They were well dressed and undoubtedly expected to pay the priest liberally for his services.

> "It is a brief period of life that is granted us by Nature, but the memory of a well-spent life never dies."—Cicero.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of Vaginal Gonorrhea.

The difficulties to be encountered in the treatment of vaginal gonorrhea, according to Dr. Daniel in *Med. Press*, are the peculiar anatomic structures of the female genital organs and the multiplication of microbes in the different segments of the uro-genital apparatus. Its oblique direction downward and forward renders the vagina difficult to disinfect. The treatment should consist of irrigation of the vulva, cervico-uterine, urethral and vaginal tracts. In very acute cases irrigations should be administered, consisting of six quarts of boiled water or a solution of potassium permanganate (1 to 10,000), associated with prolonged baths. After the acute stage has passed the treatment should be as follows:

The whole region inside and out should be washed with soap and warm water by means of a vaginal brush or sterilized wool, followed by rinsing the vagina with simple boiled water, and this followed by an injection of six quarts of warm potassium permanganate solution (1 to 4,000). The vagina should then be plugged with five or six plugs of sterilized gauze impregnated with the same solution. After twenty-four hours the plugs should be withdrawn and the injection repeated as before, followed by fresh plugs. These may then be permanently removed after twenty-four hours. The irrigations should be continued two or three times a day for ten or fifteen days. The os uteri should be painted every two days with a solution of silver nitrate (1 to 100). A pencil of the nitrate should be introduced into the urethra and immediately withdrawn every eighth day, for one month.

Gastric Vertigo.

The treatment of vertigo due to gastric disturbances, according to A. Robin in *Amer. Med.*, consists in directing the patient to take a cup of tea before arising to which has been added 30 grains (2.00) of quassia. The quassia is permitted to macerate in cold tea for two hours before it is drunk. The breakfast should consist of soft-boiled eggs, toasted bread and stewed fruit. No liquid should be given and the only liquid at other meals should be plain water or alkaline waters. No butter, fats, sauces, stews, fat fishes, pork, preserves, pastry, sweets, salads, raw fruits nor acids are permitted. Thin soup, broiled or roasted meat or fowl, vegetables, stale bread, eggs, boiled fish, stewed fruits and rice pudding should constitute the diet.

The tincture of nux vomica is prescribed in five-drop (.30) doses after each meal. And after lunch, dinner and before retiring the following powder is recommended:

℞.	Magnesiæ calcinæ	gr. v	30
	Sodii bicarb	gr. v	30
	Cretæ preparatæ	gr. viiss	50

M. Fiat chart. No. i. Sig.: One such powder after lunch, dinner and before retiring.

The bowels should be regulated by the following pill:

℞.	Aloes (cape)	gr. i	06
	Cambogiæ	gr. ss	03
	Ext. belladonnæ	gr. 1/12	005
	Ext. hyoscyami	gr. 1/12	005
	Ext. glycyrrhizæ	gr. ss	03

M. Fiat cap. No. i. Sig.: One such pill at bedtime for bowels.

If an attack of vertigo comes on the patient should be given the following combination:

℞.	Pulv. serpentariæ	gr. iiss	15
	Pulv. camphoræ	gr. 1/4	015
	Asafœtidæ	gr. 1/4	015
	Extracti opii	gr. 1/40	0015

M. Fiat cap. No. i. Sig.: From three to six pills, to be taken at intervals during the twenty-four hours.

In cases of extreme nervousness the following is recommended:

℞.	Potass. bromidi	ʒiss	6
	Aq. laurocerasi	ʒiiss	10
	Elix. simplicis q. s. ad	℥iiss	75

M. Sig.: One tablespoonful when an attack is threatened.

Hemoptysis.

The treatment of sudden and severe pulmonary hemorrhages, according to E. Hyslop Thomson in *British Medical Journal*, consists in producing conditions which favor the formation of a clot at the seat of hemorrhage by:

1. Diminishing the frequency of heart and lowering arterial tension.
2. By increasing the coagulable power of the blood.
3. By lessening the supply of blood to the diseased area.

To accomplish these conditions he advises that the head and shoulders be elevated and that a hypodermic injection of morphin grain 1/6 to 1/3 (.01 to .02) be given, and that from thirty to forty grains (2.00 to 2.65) of calcium chlorid dissolved in a small amount of water be given as a high injection. An icebag should be applied to the chest and heat to the lower extremities.

The value of morphin, according to the author, consists in its stimulating the inhibitory center and slowing the heart's action. The calcium chlorid is of great service because, first, the active fibrin ferment is rich in calcium, and wherever coagulability takes place calcium is present; secondly, the conditions which favor coagulability in the lungs are feeble, for blood, after it has circulated several times through the pulmonary vessels without entering the systemic circulation, loses its power of coagulability.

The writer also states that in excessive menstrual flow the injections of ergotin are valuable and that heat should be applied to the lower abdomen. He has not seen such valuable results from the administration of adrenalin in hemorrhages.

Silver Nitrate in Purulent Ophthalmia.

The treatment of purulent ophthalmia, according to Scrini in an abstract in *Amer. Med.*, consists in thoroughly removing the secretions from the lids by means of absorbent cotton and the application of the following lotions:

℞.	Potass. permangan	gr. v	30
	Aquæ dest	Oii	1000

M. Sig.: To be used as an irrigation to the lids.

Three or four hours later the following should be applied locally:

℞.	Argenti nitratis (crys.)	gr. iii	20
	Aquæ dest.	ʒv	20

M. Sig.: To be applied locally by means of an applicator. This should be neutralized by a solution of sodium chlorid.

If a 1 to 2 per cent. solution of silver nitrate gives *no* relief in two or three days it should be increased to 4 or 5 per cent. In case of corneal infiltration or ulceration, the silver nitrate should not be allowed to come in contact with the cornea. In such cases the following ointment should be applied:

℞.	Iodoformi (dissolved in ether)	gr. iv	25
	Vaselini (neutral)	ʒiss	10

M. Sig.: Apply locally.

If perforation seems probable, instill a few drops of a 4 per cent. solution of atropin into the eye.

Leg Ulcers—Varicose and Others.

TREATMENT OF VARICOSE VEINS.

The principles underlying the treatment of varicose veins, according to W. C. Rucker in *N. Y. Med. Jour.*, are:

1. The relief of pressure from within the veins.
2. The upbuilding of the general health.

The first may be accomplished by palliative or radical means, and the second by proper attention to diet, regulation of the bowels, and the administration of iron, arsenic and similar tonics.

The palliative measures consist in elevation of the leg and the fitting of an elastic stocking. This treatment is of benefit in those cases where the patient refuses an operation and in those in which for some reasons an operation can not be performed. However, according to the author, if a case is not far enough advanced to require an operation, no treatment is necessary, and if an operation is indicated by the conditions present, then other lines of treatment are useless. He, therefore, suggests that the saphenous vein be ligated to remove the weight of blood from the peripheral blood vessels, especially when the deep veins are involved and when the superficial veins alone are involved, multiple incision and ligation should also be done.

VARICOSE ULCERS.

Varicose ulcers are best treated by keeping the ulcer clean and stimulated, and by elevating the limb in addition to the above treatment. In order to render it impossible for the patient to lower the limb he should be put to bed, with the leg bandaged to a long posterior splint, which should be fastened to a box tied in the bed, as elevation must be constant in order to produce the proper results.

In order to cleanse and stimulate the ulcer the patient should be given an anesthetic and the wound thoroughly scrubbed with a brush, using a mixture of calcium chlorid, acetic acid and water, followed by a dressing of oiled silk, sterile gauze and a bandage applied from the toes to the knees. As soon as granulations have been established skin grafting should be performed.

This method, according to the author, is more rapid and certain than the use of various antiseptic powders, ointments, etc., as in wounds of low vitality antiseptics have a tendency to destroy granulations.

CHRONIC LEG ULCERS.

Blankenship, in the *Mobile Med. and Surg. Jour.*, says that in the milder cases of chronic leg ulcers rest, applications of various antiseptic and antiphlogistic remedies, accompanied by constitutional remedies and tonics may be all that is necessary. Strict cleanliness of the parts should always be carried out. Of the milder remedies he believes that one of the best is a weak solution of chloral hydrate (2 to 5 grs. to the ounce of water) applied on lint, with which he has had very good results in some cases. The more severe cases require more heroic treatment.

If inflammation is present, it should first be reduced by rest and appropriate means. Ichthyol applications are good for this purpose. One of the most common and perhaps one of the best methods is the adhesive plaster strappings of Baynton. This acts by affording support and compression, two of the cardinal principles in treatment of these cases, but if there is much discharge the strips would have to be removed so often that it would not answer very well. The best and most heroic plan, though it may confine the patient to his bed or to the house for five or six weeks, Blankenship believes, is in the long run the shortest course.

The method pursued is this: After a short preliminary treatment designed to disinfect the ulcer as much as possible and to reduce inflammation, the patient is given a general anesthetic, the ulcer and surrounding parts are scrubbed with a stiff nail brush and soft soap, then thoroughly curetted with a sharp curette, removing all the soft diseased tissue down to the hard, dense cicatricial base, exploring any pockets and scraping them. Then, with a scalpel, he makes incisions through the base and edges of the hardened fibrous tissue, cutting nearly or quite through the same. He crosses the incisions. If there is hemorrhage, it is stopped by hot water and pressure. With a mop of absorbent cotton he lightly and quickly touches the entire surface with pure carbolic acid, following it immediately by alcohol to limit the caustic action. He uses this not merely for its antiseptic action, but because it deadens pain. The patient does not suffer from pain after the operation. He fills the wound with boric acid in powder or scales, and applies a sterile gauze and cotton dressing, held firmly in place with a gauze bandage. If there is not much oozing this is allowed to remain on for two days. The subsequent dressing consists of cleansing with hydrogen peroxid in 50 per cent. solution and a dry dressing of an antiseptic powder combined with ichthyol, sterile gauze and cotton with bandage. If the granulations become too exuberant Blankenship uses nitrate of silver. Under this treatment there is usually a complete cure in from four to six weeks. The patients can be allowed to walk around the house a little after three or four weeks.

Eczema in Infants.

Zinc oxid is, as a rule, the best application in the treatment of moist eczema especially. It may be applied in the dry powder form or combined as follows, after thoroughly cleansing the parts involved:

℞.	*Acidi salicylici*	gr. ii	02
	Pulv. amyli	ʒii	8
	Zinci oxidi	ʒiv	15
	Adipis lanæ hydros. q. s. ad	℥i	30

M. Fiat unguentum. Sig.: To be applied locally night and morning.

Efforts should be made, in case of infants, to prevent scratching by tying the hands.

Chronic Prostatitis.

The treatment of chronic prostatitis outlined in The Journal, *Dec. 31, 1904*, will more exactly correspond with that of Dr. E. G. Ballenger, if carried out with the following details: The sounds should be placed in ice water before being placed in the urethra, for the purpose of solidifying the ointments made with oleum theobromate. Instead of the knee-chest position on the table, *Dr.* Ballenger recommends a semi-stooping position in which the patient rests his arms on the chair. The prescription preferred is as follows:

℞.	Argenti nitratis	gr. v-x	30-.65
	Olei *olivæ*	m. xv	1
	Lanolini	℥i	30

This should be introduced with an ointment carrier.

Medicolegal.

When Certificate of Death Is Competent Evidence.—The appellate term of the Supreme Court of New York says, in the case of Carmichael vs. John Hancock Mutual Life Insurance Co., that the certificate of the attending physician, when made a part of the proofs of death, is competent evidence on the trial as an admission against interest (Donnelly vs. Ins. Co., 43 Misc. Rep. 87; Hanna vs. Ins. Co., 150 N. Y. 526); and the cases which hold that such a certificate, when offered as such, without the characteristics of an admission by the plaintiff, may be excluded as privileged (Robinson vs. Supreme Commandery, 77 App. Div. 219; Davis vs. Supreme Lodge, 165 N. Y. 159), do not apply. Where the certificate has been delivered among the proofs of death, its character as proof is derived not from what the physician declared, but from what the plaintiff has admitted to be the fact, i. e., the cause of death, and the privilege which she might assert to exclude the evidence of the physician does not extend to evidence of what she has herself admitted.

Things to Which a Physician May Testify.—The Third Appellate Division of the Supreme Court of New York says, in the case of Becker vs. Metropolitan Life Insurance Co., where a policy was issued April 20, 1900, that the insurance company sought to show by a physician that on Oct. 30, 1899, he was called to attend the insured in his professional capacity; also whether he at that time did so attend him; also whether he had any record of the dates when he attended the insured in Norwich or elsewhere; also if he remembered how *long* the insured was confined to his house in October, 1899; also to give the dates between Oct. 30, 1899, and April 1, 1900, when he was called in to attend the insured, or when the insured called at his (the physician's) office to receive medical attendance from him. His answers to these inquiries were excluded, on the ground that they were prohibited by section 834 of the Code of Civil Procedure. This, the court holds, was error. It says that *neither of the questions* called for information that was in *violation of* such section, while such information was manifestly pertinent *to* the issue being tried, and would doubtless have much weight in controlling the jury's verdict

Promise for Town to Pay for Past Services.—The Supreme Court of Vermont says that in the case of Farmer vs. Town of Salisbury, brought by a physician, it appeared that, February 3, he was requested to visit a poor woman by a neighbor who promised to pay for that visit. The physician made the visit and informed the neighbor that the woman would require attendance for a long time. The neighbor declined to be further responsible, and by his advice the physician saw another neighbor, who tried to communicate by telephone with the overseer of the poor of the town, but, failing to do so, advised the physician to continue his visits, saying that he would see the overseer about the matter; but he did not see him until February 15, when he had an interview with him in the physician's behalf. The overseer then used language from which it was found that this neighbor understood, and had the right to understand, that the town would assume payment of the physician's charges, and that he so informed the physician. The trial court found that after the first visit the physician rendered his services in the expectation that the town would pay him, and, after this second neighbor's report to him, in reliance on such payment. The Supreme Court says that it was apparent that the overseer undertook to assume payment of the physician's entire bill, but there was no consideration for the promise to pay for the services rendered prior to February 15. They were not rendered on the overseer's promise to pay, and did not inure to the town's benefit. Therefore, the town was not liable for them, but was liable for the charges made after that date.

Communications to Physicians Not Privileged.—The Supreme Court of Rhode Island says that in the divorce case of Banigan vs. Banigan while a master in chancery was taking the deposition of a physician who had treated the defendant professionally, the witness objected to stating the disease for which he had treated the defendant. The master decided that the witness should testify. Thereon, the witness suggesting that the question as to whether he should be compelled to testify was one of much importance and that it should be decided by the court, the master suspended the proceeding, and filed a petition before Mr. Justice Dubois asking advice as to whether the witness was privileged to refuse to testify. The justice formally advised the master that the witness was not privileged to refuse to testify as requested by counsel for the petitioner, communications to physicians not being privileged in Rhode Island, and hence that the witness should be required to answer the question. The Supreme Court says that the petition by the master for instruction and advice above referred to was clearly within the jurisdiction of Mr. Justice Dubois, and, he having passed thereon, there was no authority in the Supreme Court either to reverse or to review his finding. It further says that there was obviously no reason for the justice who heard the matter in question to refer it to the larger quorum, since the uniform practice of this court from the earliest times has followed the rule of the common law in refusing to recognize a confidential communication to a physician as privileged, so as to protect the physician from divulging it when called on to do so as a witness in court.

Damages for Mental Anguish Without Physical Suffering.—The Supreme Court of North Carolina, in the case of Green vs. Western Union Telegraph Co., says that a significant fact is the growing tendency of judicial opinion to allow compensatory damages for mental suffering even when disconnected with any physical suffering. Of course, in cases merely of slander or libel, the court says, there could be no physical pain except as the reaction of mental suffering. The mere fact that a shock to the feelings which goes directly to the mind, without ever touching the body, may produce such reaction on the physical system as even to endanger life itself, is *per se* (by itself) the surest proof of the existence of actual suffering, and the strongest argument for the allowance of compensatory damages. If such suffering actually results directly from the wrongful act of the defendant, it would seem to make but little difference what were the collateral circumstances. Again, the court says that when we remember that this doctrine of mental anguish in telegraph cases is of recent origin, having theretofore been deemed contrary to the principles of the common law, and has made constant progress in opposition to the preconceived ideas of courts and jurists, it seems that it must possess much inherent strength and merit. This is especially evident from the action of certain courts, some of them of the highest reputation, which, while denying the doctrine in telegraph cases that damages for mental suffering may be recovered in the absence of physical pain or injury, allow it in cases of a kindred nature, such, for instance, as insulting or humiliating a passenger. An examination as to the present status of the doctrine in the different states, so far as ascertainable, shows it adopted in telegraph cases in Texas, Tennessee, Alabama, Kentucky, Iowa, Louisiana, South Carolina, Nevada, Washington (indirectly). The doctrine is denied, as shown by the most recent cases in Florida, Georgia, Illinois, Indiana, Kansas, Minnesota, Mississippi, Ohio, West Virginia, Wisconsin, Virginia. In this case a statute was passed on the subject, which apparently failed of its purpose. In the following states there have apparently been no decisions in telegraph cases on the subject: Arizona, California, Colorado, Connecticut, Delaware, Idaho, Maine, Maryland, Massachusetts, Michigan, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, and Wyoming.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 14.

1 **The Foundations and Aims of Modern Pediatrics.* Theodore von Escherich, Vienna, Austria.
2 [illegible] Ray and Surgical Treatment of [illegible] R. Bullitt, Louisville, Ky.
3 [illegible] of Hypertension. Henry Wireman [illegible]
4 *Intussusception of the Appendix Vermiformis. George Emerson Brewer, New York.
5 *Lithemia: Its Diagnosis and Local Treatment. F. M. Johnson, Boston.
6 Three Interesting Cases: *Gastroptosis and Dilation; Chronic Tenosynovitis; Thoracic Abdominal Aneurism.* G. Childs MacDonald, San Francisco.

1. **Modern Pediatrics.**—Escherich reviews the various steps taken by pediatrics in its development into a science and which have considerably extended and clarified the study of pediatrics. Modern pediatrics exhibits a scientific structure including all disturbances of the life processes, arranged according to scientific principles, and in its completeness not reached by any other specialty in medicine. Only a small number of diseases can be considered peculiar to childhood, because they are caused by events which can not occur in the life of adults, such as the change from intrauterine to extrauterine life, and growth and development. The key to the understanding of the special pathology of the infantile organism is to be found in the study of developmental processes. Between the growing organism of the child and that of the completely developed adult great differences exist in the reaction called forth by the diseased process, the variations, which change constantly in the course of childhood. The author also considers the threefold division of childhood accepted by Vierordt, which he accepts as the most scientific as well as practical.

4. **Intussusception of the Appendix.**—Brewer cites the case of a woman, aged 22, suffering from symptoms of acute appendicitis. The abdomen was opened, and a prolonged search made for the appendix, which proved futile. Five months later the patient again presented herself, complaining of constant pain and tenderness in the right iliac fossa. The abdomen was again opened, the ileo-cecal region was dissected free from a mass of adhesions and thoroughly inspected. No trace of the appendix was found, but on palpating the cecum an elongated oval body was felt within its lumen. The intestine was opened by a longitudinal incision, and the inverted appendix was found projecting into the cecum. The patient

made a satisfactory convalescence and is entirely relieved of all symptoms. Brewer suggests that the condition was a congenital one and that the acute attack was due primarily to the inflammation of the cecum which resulted in a stricture with secondary involvement of the appendix. Or, that as a result of a catarrhal appendicitis, with or without the presence of a foreign body, the muscular efforts of the appendix to rid itself of its contents became so violent as to produce an intussusception in the same manner as the lesion is produced in other portions of the intestine.

5. **Lithemia.**—Johnson emphasizes the great value in lithemia of the microscopic findings in the urinary sediment, not only because of their diagnostic importance, but also because they serve accurately to indicate certain essential lines of treatment. He says that if catarrhal inflammation of the kidney is present and the bladder is likewise involved, thorough washing out of the bladder and lavage of the kidneys are of great value. When carefully done the procedure is harmless. The invasion of an ascending inflammatory process is completely stopped and accumulating concretions are washed away. The treatment is discussed in full.

Medical Record, New York.

January 14.

7 *Diseases of the Isthmian Canal Zone. Richard L. Sutton, U. S. A.
8 Value of Publicity Regarding Tuberculosis. Denslow Lewis, Chicago.
9 Sudden Death, [illegible] Embolism Following Surgical Intervention. [illegible] Chicago.
10 Treatment of [illegible] James W. Hunter, Norfolk, Va.
11 Infections of the Gall Bladder. Thomas W. Harvey, Orange, N. J.
12 *Pneumonia in High Altitudes. Summary of 101 Cases of Lobar Pneumonia Treated at the American Hospital, Mexico City, from 1890 to 1904. Albert R. Goodman, Mexico City.

7. **Diseases of Isthmian Canal Zone.**—Sutton reviews the diseases to be encountered in this particular territory, and the conditions which must be met by medical men. He says that the practitioner who expects to find a case of "yellow jack" or black water fever in every native clinic he conducts, will be greatly disappointed. These diseases are present at times, but are encountered much more seldom than the average reader would be led to imagine. Malaria is probably more frequently seen than any other affection among the natives. Long-continued residence and many attacks of malaria have combined to render the older inhabitants partly or wholly immune to the infection. The disease is encountered very frequently, however, among children, from earliest infancy to adolescence. The estivo-autumnal type is the most common. Often the symptoms seen are not directly indicative of malaria at all. The onset may be very atypical. Mixed tertian and estivo-autumnal fever is seen rarely, and no case of quartan infection has been discovered. Patients suffering from advanced degrees of malarial cachexia are often met with. Dengue is the disease which most frequently attacks the new arrival in the Isthmus, and even the more acclimated natives do not wholly escape it. The disease is extremely contagious, and many persons in the same place are usually attacked at the same time. Beri-beri, seen most frequently in the wet lowlands and marshy districts, thrives in the Isthmus, especially affecting the Chinese contingent. Both the dropsical and paraplegic forms are seen, often the two are associated. Infection with intestinal parasites is the rule. The eggs of half a dozen different species can be found in nearly every specimen examined. The parasites found are the *oxyuris vermicularis, tricocephalus trichiuris, ascaris canis* and *ascaris lumbricoides, strongyloides intestinalis,* and *uncinaria duodenalis.* One of the most troublesome insects on the Isthmus is the "jigger," the *culex penetrans.* Snakes, centipedes and spiders are numerous, but the danger from them is not great. Heat exhaustion and sunstroke occur more often among the Americans than any other class. Dysentery is still much in evidence, especialy among the natives. *The disease is of both* types, the acute specific, due to Shiga's bacillus, and the amebic, with the former predominating. Acute and chronic articular rheumatism also occur, and myalgia, especially of the lumbar muscles, is frequently encountered, malarial infection probably being the causative agent in many cases and dengue in others. Smallpox makes occasional inroads. Yellow fever is not at present epidemic and sporadic cases are seldom seen. Sutton says that the Isthmus is now in better condition, from a hygienic standpoint, than it has ever been, and, taking even the peculiar character of the climate into consideration, the health of the inhabitants will soon compare favorably with that of the residents in any extreme southern country.

12. **Pneumonia in High Altitudes.**—Goodman gives a summary of 101 cases of lobar pneumonia treated at the American Hospital in Mexico City during the past fifteen years. Of this number, 91 were males and 10 were females. The greatest number of cases, 79, occurred during the first six months, only 22 cases occurring in the second half of the year. Pneumonia is frequent before the rainy season and decreases during the rains and directly afterward. The average mortality for all cases during this time was 39.8 per cent. Deducting 4 cases in which death occurred within twenty-four hours after entering the hospital, the mortality is 37.1 per cent. Of cases treated since 1898 (since when more accurate records have been kept)—68 in all—the mortality was 50.1 per cent.; of these 4 died within 24 hours after admission, leaving the mortality of the remaining 57 cases, 47.4. The average of these 4 mortality percentages is 43.5, which in Goodman's opinion represents fairly accurately the actual mortality of pneumonia as existing in the hospital.

Medical News, New York.

January 14.

13 *Care of Puerperæ. James D. Voorhees, New York.
14 *Trauma and Chronic Compression of the Epigastrium as Etiologic Factors of Gastric Ulcers. William Ackermann, Milwaukee.
15 Nervous Symptoms Accompanying Pernicious Anemia. Roy M. Van Wart, New Orleans.
16 *Prostatectomy in Emergency Cases. John F. Erdmann, New York.
17 Observations on the Blood Pressure in Disease. Roger S Morris and Charles W. Edmunds. Ann Arbor, Mich.

13. **Care of Puerperae.**—Voorhees advises continued asepsis after delivery. For the first two or three days he places a piece of gauze wet with a 1 to 10,000 bichlorid solution over the vulva beneath the sterile vulva pad. Early vaginal examination and douching he condemns. After from ten to twelve days hot douches undoubtedly help the involution of the uterus. In some cases where the uterus continues to relax immediately after delivery, he often gives an intrauterine douche of acetic acid with good result. Voorhees says he often doubts the efficacy of the abdominal binder, although for the first two or three days it does keep down the gas and supports the abdominal walls. And in short-waisted women who have carried the child high and well out in front, it prevents an anterior relaxation of the abdominal walls. But for women who carry the child low and well backward, they are more or less unnecessary. Consequently, if such cases are bothered by the binder after the third to fifth day, he allows it to be discarded. To insure as complete involution as possible, Voorhees advises that on the second day the patient should be turned first on one side and then on the other; on the fifth day she should commence to lie on her abdomen for shorter or longer periods and be encouraged to sleep in this position, if possible. This change in posture favors the escape of the lochia and allows the uterine ligaments to contract, so favoring normal anteflexion. He advises keeping the patient in bed at least two weeks and longer if any signs of subinvolution persist. If involution is delayed, hot vaginal douches, boroglycerid tampons, ergot, quinin and strychnin are of service. The routine vaginal examination should be made before any case is discharged to determine the possible existence of erosions, inflammations, displacements, etc.

14. **Etiologic Factors of Gastric Ulcer.**—*Ackermann* discusses the influence of traumatism and epigastric compression, particularly long continued, in the causation of gastric ulcer. He says that, taking into consideration the fact that men, owing to their occupation, are more liable to epigastric compression than women, it is plain why ulcers occur more frequently in

men than in women during the latter years of life. And that in all probability many cases of gastric dilation thought to be due to perigastritis really owe their existence to cicatrices following traumatic ulcers. Sixteen cases are cited in which constant pressure on the epigastrium was followed by gastric ulcer. Both the occupation of the patient and the situation of the ulcers seemed to substantiate the author's view of the importance of compression, the ulcers usually being found near the pylorus, this part of the stomach being more exposed to pressure.

16. **Prostatectomy in Emergency Cases.**—Erdmann calls attention to the advantages of doing a prostatectomy in every instance possible, when the prostate is in part the cause of obstruction, in cases coming under the head of emergency drainage of the bladder. He cites records of eight cases that belong distinctly to this class in which relatively six different emergency indications are dealt with. The cases were as follows: 1. Impassable urethra due to stricture with rupture and gangrene of the entire scrotum and perineum. 2. Retrograde hemorrhage, bladder being full of clots and bloody urine, with malignancy of prostate. 3. False passage; retrograde hemorrhage; suprapubic aspiration, with infiltration of abdominal wall extending to the thorax and to the gluteal regions. 4. Acute obstruction due to eposure to cold and wet, inability to catheterize; trauma of the urethra. 5. Trauma of the urethra; catheterization for several days. retrograde hemorrhage, etc. 6. Deep stricture of the urethra; obstruction; catheterization cystitis with absorption. Erdmann is of the opinion that drainage by prostatectomy in these cases is the only method of procedure and that the perineal route is the one to be selected in practically every instance. Cases 1 and 3 died, but not because of anything in connection with the operation. Erdmann recommends emergency operative procedure because (a) only a few minutes more are required to remove the gland, the hemorrhage as a rule is not excessive, and the operative procedure itself does not increase the shock to any degree. (b) The removal of the prostate gives proper exit to the urinary outflow and admits of easy drainage. (c) Washing the bladder is much facilitated. The perineal route is recommended because (a) the opening is practically at the lowest point of the bladder and complicated devices for drainage, such as are necessary in suprapubic sections, are not required. (b) The old, being irritable and feeble and requiring to be moved frequently, the drainage in the suprapubic method is constantly interfered with, while in the perineal method it is controlled. (c) The after-soiling, when the tube is removed, is slight, and easily controlled in the perineal method as compared with the suprapubic. (d) Bladder irrigations are more readily done with less soiling of the bed, etc.

New York Medical Journal.

January 14.

18 The Present Status of Railway Emergency Work. U. F. Martin, New York.
19 *A Clinical Study of Myoidema with Especial Reference to Its Occurrence in Pulmonary Tuberculosis. Henry L. Shively, New York.
20. Radium; a Review of the Literature. Fred G. Hodson, Atlanta, Ga.
21 Differentiation in the Diagnosis of Non-deforming Club-foot. John Joseph Nutt, New York.
22 *Tic Douloureux and Other Neuralgias from Intranasal and Accessory Sinus Pressures. Sargent F. Snow, Syracuse, N. Y.
23 Biliary Colic Without Gallstones. John G. Sheldon, Telluride, Colo.
24 The Proper Scope of Scientific (So-called Expert Testimony in Trials Involving Pharmacologic Questions (concluded). Solomon Solis-Cohen, Philadelphia.

19. **Myoidema in Tuberculosis.**—Shively has found this symptom present not only in tuberculosis pulmonalis, but also in typhoid, lobar pneumonia, acute and chronic bronchitis. carcinoma of the breast, aneurism of the arch of the aorta. and in secondary syphilis, and he has also observed it in perfectly normal individuals. In a series of 750 consecutive cases of tuberculosis of the lungs, myoidema was present in 703. Of this number, 196 were incipient. 475 moderately advanced and 79 advanced cases. In the incipient cases the fibrillary and nodular variety of myoidema could be obtained in 135; the nodular alone, in 19; the fibrillary alone, in 24, and neither form in 18. In the moderately advanced cases both kinds were present in 379; the nodular alone, in 30; the fibrillary alone, in 37, and neither form, in 29 cases. In the advanced cases both varieties were obtained in 74; the nodular in 4 cases, and the fibrillary in 1 case. It would seem that a phenomenon found in such widely different conditions could have but little diagnostic significance in any one of them. Yet, it is apparent that it is present in the great majority of all cases of tuberculosis of the lungs, and that it is usually obtained even in the incipient stages of the disease. Therefore, it is not without some importance as an addition to the syndrome of signs and symptoms which makes the early diagnosis less difficult. Myoidema, says Shively, is one of the indications of departure from health which should receive some consideration.

22. **Pressure Neuralgias.**—Snow believes that many cases of tic douloureux arise from intranasal and sinus pressure, and that 80 per cent. would be a modest estimate. The intense aggravated forms of headaches characterized by convulsions, rigidity of muscles, etc., that he has observed have been in females where a combination of both marked nasal and uterine factors existed. He advises careful and thorough inspection of the intranasal and accessory sinuses in such cases.

Boston Medical and Surgical Journal.

January 12.

25 *Systemic Use of Work as a Remedy in Neurasthenia and Allied Conditions. Herbert J. Hall, Marblehead, Mass.
26 *Improved Technic for End-to-end Intestinal Anastomosis. Alfred H. Gould, Boston.
27 Observations on Experimental Drainage of the Peritoneal Cavity of Cats. Fred T. Murphy, Boston.
28 Consideration of Autointoxication and Autoinfection as a Cause of Various Mental Disorders (concluded). L. Vernon Briggs, Boston.

25. **Work as a Remedy in Neurasthenia.**—Hall protests against the almost universal application of rest in the treatment of neurasthenia and allied conditions. A study of the etiology of this rather indefinite disease has led him to some conclusions as to treatment that are a little at variance with the usually accepted ideas. Hall believes that some means must be devised whereby the neurasthenic or anyone who, for reasons of mental and nervous hygiene. might need to change his occupation and habits of life, could do so without the shock or failure which the usual desultory and spasmodic attempts at such an action imply. The great need seems to be to lift the neurasthenic out of his tangle of nervous symptoms, not by substituting another abnormality in the shape of unduly prolonged rest, but by bringing about, by a gradual process, the conditions of the normal life, a life of pleasant and progressive occupation, as different as possible from the previous life and resulting in self-forgetfulness. Manual work is best, for it is objective and wholesome, and trains to accuracy and precision of movement. In order to test the soundness of these preconceptions, Hall established a practical shop for the manufacture of pottery and for the production of a variety of fabrics by means of hand weaving. A competent teacher was secured, and she, with a few assistants, proceeded to make the shop practical and effective from a mechanical and artistic point of view. The shop was popular at once and had a very encouraging effect on the early patients. Basket-making has recently been introduced and is proving very useful. The work of the patients has been surprisingly good when judged by exacting standards. Having established this shop and made it practicable for those mildly affected, the next step was to attract and hold a confirmed neurasthenic and to enable them to escape the usual consequences of exertion. In the lighter cases there was no difficulty. The surroundings were so novel and the work so attractive that before they realized it themselves, these patients were hard at work. After eliminating as far as possible such evident sources of irritation as eyestrain, the problem seemed that of diminishing the prohibitive or anticipatory fatigue symptom. To do this Hall begins a treatment by a short period of rest in bed, perhaps a few days, perhaps a week, under the usual rest-cure conditions. Then, without any warning whatever, the patient

is required to do something. A very gradually progressive program is written out each day and intrusted to the nurse, the patient having no knowledge of what is expected of him. This device has proved exceedingly satisfactory. The progression leads to the shop and it depends on the work there, the actual living of a rational life, to fix and render permanent the improvement. The hours of rest are gradually made shorter and the hours of work longer until the day is full of interest and self-forgetfulness and the need of prolonged rest is lost. After a few weeks of work, when the inertia of months or years has been cast aside, it is remarkable to observe the change in facial expression, in precision and skill of movement, and in the whole morale of the patient. To encourage a feeling of independence, it has been decided that when a patient can turn out work of value the product may be sold through the agency of the shop and the proceeds credited to the maker. In order to test more thoroughly the efficiency of treatment by work, little or no use has been made of special baths, massage and electricity. The one great end to be obtained is self-forgetfulness and a pride and satisfaction in work and in life. While the agents mentioned are of value and are sometimes necessary, yet they constantly call the patient's attention to himself and to his symptoms. Hall hopes that the treatment by work will not only sidetrack the neurasthenic state, but will substitute a simple, but positive efficiency which will reorganize the life of the individual on better lines and which will do it substantially and speedily without undue mental strain on the part of the physician, nurse or patient.

26. **Improved End-to-End Intestinal Anastomosis.**—According to Gould, the only original feature of his technic is the method of beginning the first layer of continuous sutures. It is customary to start at the free edge of the bowel and sew toward the mesentery. This makes it necessary to work in a pocket while crossing the mesenteric border. For this reason it is preferable to place the first guides in such a manner that the mesenteric border will be first developed, and, when this has been sewed across, the rest is plain sailing. The size of the catgut is important. No. 0 chromic gut is amply strong and threads easily in a No. C milliner's needle, which is twice or three times the size of the usual needle employed. No. I Pagenstecher's celloidin thread and No. 0 chromic gut thread so easily that it can be done without any delay during the operation. The anastomosis is made with three separate stitches: 1. The mattress mesenteric stitch (Maunsell, Connell). 2. Continuous suture of all coats. 3. Interrupted or continuous seromuscular stitch (Cushing or Lembert). After the usual clearing of the lumen of the gut, short-jawed clamps are applied, leaving a margin of about three inches on either side of the area to be cut out. Handkerchief gauze is wrapped around the intestines beneath the clamps to isolate the field of operation. The resection is done by means of scalpel and scissors. Hemorrhage from the mesenteric vessels is checked at once. The placing of the Maunsell mesenteric mattress stitch forms the starting point of the anastomosis. This should enter and leave the bowel at least an eighth of an inch from the cut edge, but should penetrate the mesenteric space and peritoneum farther forward. The mesenteric third of the bowel circumference is rather inaccessible, and, to bring this portion forward, guide stitches are introduced with the ends left inside. On tightening the guides, the remaining circumference of the bowels falls away and the inverted edges are freely exposed at their mesenteric attachments. To control hemorrhage and to bring the cut edges together, a continuous chromic catgut stitch is used, size preferably No. 0. This stitch starts near one of the guides and is knotted on the outside where a long end is left to tie to the last stitch after it has completely approximated the circumference of the cut edges. The continuous through-and-through stitch passes across from one guide to the other. When the second guide has been reached, a third guide is introduced half way between the first two, on the free edge of the bowel opposite the mesenteric attachment. The ends of this guide are left outside. Traction on this and on the lower guides will make easy the completion of the continuous suture. The last stitch is knotted to the long end left on the first knot and the guide is removed. The continuity of the chromic stitch must be broken at points an inch or so apart. This makes it difficult to narrow the lumen by drawing the catgut into a purse-string and also gives greater security to the joint. The most important step is the seromuscular stitch. Both continuous and interrupted sutures are employed for this purpose, but the Lembert interrupted is the more reliable, on the whole. The first interrupted seromuscular stitch is placed opposite the mesenteric border, and this is followed by a stitch at the mesenteric edge on either side. The ends of these three stitches are left long, as they make excellent guides for the remaining stitches, which are introduced in the usual way. The mesentery is finally brought together by a few interrupted catgut stitches.

Lancet-Clinic, Cincinnati.

January 7.

29 A Study of the Mental Disorders of Adolescence. Frank Parsons Norbury, Jacksonville, Ill.
30 Indifference to Diagnosis One of the Dangers of Modern Surgery. Jacob Block, Kansas City, Mo.
31 The Tear-passages and Their Diseases. Mark D. Stevenson, Akron, Ohio.
32 Case of Tuberculosis with Some Unusual Points of Interest. Samuel E. Earp, Indianapolis, Ind.
33 The Ocular Manifestations of Cerebral Syphilis. Louis Stricker, Cincinnati.
34 Is the Practice of Producing Abortion Common Among Medical Men? T. B. Greenley, Meadow Lawn, Ky.

St. Louis Medical Review.

January 7

35 A Device for Making Forward Pressure on the Body of the Uterus. Frank P. Foster, New York.
36 Arizona Ticks. W. C. Barnard, Seneca, Mo.

Bulletin of the Johns Hopkins Hospital, Baltimore.

January.

37 *Some Newer Aspects of the Pathology of Fat and Fatty Degeneration. Henry A. Christian, Boston.
38 Fabricius Guilhelmus Hildanus: the Father of German Surgery. Walter B. Platt.
39 Importance of Testing the Ocular Muscle Balance for Near, as Well as for Distant Vision. Samuel Theobald, Baltimore.
40 Infantile Paralysis of the Abdominal Muscles; with Report of a Case. Wm. Burgess Cornell. Towson.
41 *The Diagnostic Value of Tuberculin in Orthopedic Surgery. W. S. Baer and H. W. Kennard, Baltimore.
42 A Practical Method of Demonstration. W. J. Calvert, Co-
43 Effect of the Bile on the Ester-splitting Action of Pancreatic Juice. Albion W. Hewlett, San Francisco.
44 Case of Right-sided Infantile Hemiplegia, with a Description of the Pathologic Changes Found in the Brain and the Spinal Cord. Robert Reuling, Baltimore.

37. **Pathology of Fat and Fatty Degeneration.**—Christian has found that visually demonstrable fat is present normally in very many cells of the body, while extracted fat occurs in practically all of the tissues. Under abnormal conditions the visually demonstrable fat appears in the cells in increased amount and is always an index of cell injury. With regard to fatty infiltration and fatty degeneration, he says that fatty infiltration is the physiologic appearance of fat in normal cells, and that fatty degeneration is the appearance of fat in injured cells; the fat is an index rather than the direct result of cell degeneration. However, in both conditions the origin of the fat is probably the same, coming from without the cell by transport from fat depots elsewhere, but it may arise within the cell from fat related bodies, not from proteid.

41. **Tuberculin in Orthopedic Surgery.**—Baer and Kennard detail the results they have obtained from the use of tuberculin in orthopedic surgery. Forty private patients were injected. The cases were selected almost invariably in order to clear up the diagnosis. Twenty-five gave a positive and 15 a negative reaction. Of the former, 6 were subsequently operated on and all proved to be tubeculous. In 18 of the remaining 19 cases the diagnosis was verified by the subsequent history and the response to treatment. The remaining case is a recent one and therefore not available. Of the 15 patients who did not react, one was operated on and no evidence of tuberculosis was found; of the other 14, 8 have recovered under non-tuberculous treatment; the remaining 6 are improved and all suspicion of tuberculosis has been removed. Radiographs were taken of 15 of the 25 cases which reacted to tuberculin. Six

showed a focus, in 5 the disease was suspected only, and 4 showed no lesion. The authors consider tuberculin the best and most reliable diagnostic agent for incipient tuberculosis of bones and joints. Its proper administration is attended by no permanent, harmful effects. The dosage is variable, but it is rarely necessary to give more than six milligrams. The local signs following the use of tuberculin they consider of equal, if not greater, importance than the general reaction in bone and joint tuberculosis. Previous to the injection of tuberculin, the local seat of disease should be examined carefully for all signs of the suspected trouble. In response to the tuberculin, if tuberculosis be present, all the local signs of the disease will be distinctly increased; that is, motion will be more limited, the deformity will be greater; tendinous and muscle spasm will be exaggerated, and local temperature may be increased. Tuberculosis practically always reacts to tuberculin. Although radiography is of value in the diagnosis of these conditions, the use of tuberculin permits of an earlier and more positive diagnosis than the x-ray.

St. Paul Medical Journal.

January.

45 *A Method of Total Excision of the Ureter, with a Few Incidental Remarks on Kideny Tuberculosis. Arnold Schwyzer, St. Paul.
46 *The Control of Smallpox. H. M. Bracken, Minneapolis.

45. **Total Excision of the Ureter.**—The value of Schwyzer's method lies in the reduced amount of disturbance of the tissues, in the reduced size of the abdominal incision, and in the greater feasibility of a complete excision of the ureter, as compared with other methods. In cases of firm addhesions of the ureter to the surrounding tissues, or of advanced tuberculous periureteritis, it can not be employed. To better illustrate the method, Schwyzer mentions the case in which it was used. The patient, a woman, aged 23 years, was found to be suffering from a right-sided tuberculosis of kidney and ureter, with secondary infection of the bladder, and with the left kidney not beyond suspicion. Inasmuch as something had to be done, he decided on a preliminary exposure and exploration of the kidney. An incision was made four inches long, parallel to the costal border and an inch below the twelfth rib, beginning just outside the sacrolumbalis muscle. The fat capsule of the kidney was very dense, so that it was with difficulty that the kidney was separated from it. The kidney was rather large, and the fibrous capsule was ragged. A small incision was made into the convex border of the kidney. Through this a very soft silver probe was passed well down into the ureter, nothing but blood escaping from the wound. A large, soft-rubber catheter was passed through this opening and down about three inches into the ureter. It was left there for drainage. The abdominal walls were closed up to one inch for drainage. A week after the nephrotomy, he excised the kidney and ureter. With the patient in the lithotomy position, an incision, a little over one inch long, was made into the right vaginal vault over the region of the ureter. The ureter was somewhat freed, and a blunt hook was introduced over it. It was then dissected out of the bladder wall. Its end was caught and the bladder wall sutured with catgut. A string was tied to the free end of the ureter. The stitches were removed from the former lumbar incision, which was extended to five and a half inches in length, the anterior end of the incision being two cm. and seven cm. above the anterior superior spine. The kidney was freed and the ureter dissected out with the fingers for a considerable distance. The renal vessels were tied and the kidney cut off from them. The kidney was now outside of the wound and free, except from its attachment to the ureter. Two fingers of the left hand were next inserted down along the ureter, while two fingers of the right hand worked themselves through the incision in the right vaginal vault, also following the ureter. The fingers of the two hands worked about the ureter until they met. They were helped in their freeing action by the assistants pulling on the lower end of the ureter and alternately on the kidney. A small drainage tube was left in the vaginal opening. A drainage tube with gauze was placed in the upper wound, and the lumbar incision was closed, except about the drain. The patient is having a troublesome convalescence. Where the distance from the nephrectomy incision to the incision in the vaginal vault is much too great for the fingers of the operator, a small incision, just allowing two fingers to pass, could be made above Poupart's ligament, and the ureter, held in tension by pulling, can easily be reached and found extraperitoneally over the border of the iliac vessels. From there the fingers of the two hands will reach each other with ease and work bimanually. In order to use the same method in male patients, a perineal section would be necessitated, a much more complicated operation than the one in the female.

46. **Control of Smallpox.**—Bracken believes that statistics the world over have demonstrated fully that the proper enforcement of vaccination will prevent the occurrence of smallpox. And that it has also been demonstrated, that it is impossible to control smallpox by any known method of quarantine. Recognizing these facts as true, efforts to control this disease should be based on vaccination rather than on quarantine. Without vaccination there is no reason why smallpox in time should not again become as great a scourge throughout the world as it was in the prevaccination era. Compulsory vaccination laws are important. These should be demanded by the laity. Physicians should use their influence in favor of vaccination, but they should not place themselves in a false light by trying to force legislation demanding compulsory vaccination laws. Such laws should be demanded by the people as a means of self protection. However, if the people choose to follow the leadership of faddists against vaccination, rather than the scientific teaching and actual demonstrations in favor of vaccination, then on the people should rest the responsibility for the consequences resulting from failure to protect against smallpox by means of thorough vaccination. Bracken states emphatically that quarantine is either evidence of a lack of scientific knowledge as to the proper means to be employed in the control of a communicable disease, or inability to apply such knowledge. Therefore, the attempt to control smallpox by means of quarantine should be abandoned, for it is unscientific, impracticable, expensive and an absolute failure. The present methods of quarantine for smallpox should not be discontinued suddenly, but after a sufficient time has elapsed to permit of the creation of compulsory vaccination laws.

Ophthalmic Record, Chicago.

December.

47 Glioma of the Pons, with the Eye Symptoms and Report of the Autopsy in a Child Seven Years Old. Casey A. Wood, Chicago.
48 [illegible] Perforation of the Sclera; Exvolvement of the Optic Nerve; Examination of the Specimen. [illegible] A. Shumway, Philadelphia.
49 [illegible] llowing a Contusion Wound of [illegible] tland Ramsay, Glasgow.
50 *The Combined Treatment in Diseases of the Eye, Especially in That of the Uveal Tract. G. Herbert Burnham, Toronto.
51 Report of a Case of Glaucoma with Operation with Unintentional Result, Which Suggests a Possible Improvement on the Operation of Iridectomy as It Is Ordinarily Performed. J. C. McAllister, Ridgway, Pa.

50. **Combined Treatment in Eye Disease.**—Burnham considers the treatment of various diseases of the eye by a combined method, that is, the internal administration of mercury and potassium iodid, associated with the hypodermic injection of pilocarpin, which he has been using for fifteen years. He finds that it stimulates the nerve centers to a remarkable degree, and through them the ordinary physiologic processes of the affected part or parts especially are aroused to an activity far in excess of the normal, and thus the diseased condition is acted upon and removed. Moreover, this hyperactivity can be regulated and sustained for years, if necessary, by the manner in which the combined treatment is administered. The method has proved unusually successful in the treatment of cases of very severe cyclo-irido-keratitis, failing vision in a rheumatic, acquired syphilitic cyclo-iriditis, hypopyon keratoiritis of the worst type, albuminuric neuroretinitis, cerebral syphilis, choroido-retinitis, and corneal nebula, specific or nonspecific.

American Journal of the Medical Sciences, Philadelphia.

January.

52 Osteogenesis Imperfecta (So-called Fragilitas Ossium). P. William Nathan, New York.
53 *Erythema Infectiosum. Henry Larned K. Shaw, Albany.
54 Case of Amaurotic Family Idiocy. James H. McKee, Philadelphia.
55 Ocular Manifestations in Amaurotic Family Idiocy. Mary Buchanan, Philadelphia.
56 Histologic Examination of the Eyes in a Case of Amaurotic Family Idiocy. Edward A. Shumway and Mary Buchanan, Philadelphia.
57 Pathologic Study of Amaurotic Family Idiocy. William G. Spiller.
58 Case of Carcinoma of the Ureter Apparently Induced by a Calculus Lodged in Its Juxtavesical Portion. William F. Metcalf and Homer E. Safford, Detroit.
59 *Primary Sarcoma of the Bladder, with a Report of Three Cases and Review of the Literature. J. A. Wilder, Denver.
60 *Case of Spontaneous Arrest of Growth in an Endothelioma, with Subsequent Inflammatory Absorption. B. M. Randolph, Philadelphia.
61 The Mental State Associated with Chorea. With Report of Two Cases of Dementia Choreica. A. W. Hoisholt, Stockton, Cal.
62 A Report of 281 Mastoid Operations, with Subsequent Results. Hill Hastings, Los Angeles.
63 The Effect of Suprarenal Preparations on Living Protoplasm. Beaman Douglass, New York.
64 The Influence of Suprarenal Extract on Absorption and Transudation. S. J. Meltzer and John Auer.
65 A Study of the Brain Tumors, with Report of Four Cases. Newton Evans, Battle Creek, Mich., and Benton Colver, Dayton, Ohio.
66 Some Practical Observations on Suppurative Hepatitis. William W. Ashhurst, Chihuahua, Mexico.

53. **Erythema Infectiosum.**—Shaw calls attention to a disease which he says has been described independently by several well-known pediatrists and which, in his opinion, has clinical features distinct enough to justify its classification with the acute exanthemata. The priority of recognition as a separate disease entity belongs to Escherich. Erythema infectiosum is a feebly contagious disease, occurring chiefly in children between the ages of 4 and 12 years, with very slight subjective symptoms, and characterized by a maculopapular, rose-red rash, pronounced on the cheeks, legs, and outer surface of the arms. The specific agent is unknown. The disease occurs in epidemics and often follows an outbreak of measles or rötheln. Both sexes are equally affected. It occurs most frequently in the spring and summer months. The period of incubation varies from six to fourteen days. The disease may be ushered in by a slight feeling of malaise, weakness and sore throat, but in the majority of cases the first symptom noticed is the eruption. This is the most important and often the only symptom. It appears invariably on the external skin, usually first on the face, chiefly the cheeks. The skin is hot to the touch, is swollen, but is not sensitive; nor does it itch. The whole appearance is suggestive of erysipelas. The eruption is confluent over the cheeks, and the edges are well defined. slightly raised and distinct from the normal skin. The area of confluent eruption is rather sharply limited in front by the nasolabial folds and above by the temples. Laterally, it extends to the angles of the jaws. Discrete spots are often seen on the forehead and chin. The rash fades from the face after four or five days. On about the second day the eruption makes its appearance on the body, where it is most marked on the outer surface of the legs and arms. The trunk is involved to a much less degree, and may be almost free. The hands and feet are the last portions of the body to be affected. An evanescence is often observed which is perhaps peculiar to the disease. The eruption is not followed by desquamation. No hemorrhage results on pinching the skin. The lymph glands are not enlarged. The subjective symptoms are conspicuous by their absence. Measles can be excluded by the absence of involvement of the mucous membranes, of all constitutional symptoms and of Koplik's spots. In rötheln the rash spreads rapidly over the entire body and is of a different character from that seen in erythema infectiosum. There are also constitutional symptoms.

59. **Primary Sarcoma of Bladder.**—Three cases of this kind are reported by Wilder: 1, a round-celled sarcoma in a man, aged 48 years; 2, a fibro-sarcoma in a man, aged 53 years; 3, a mixed-celled (spindle and round) sarcoma in a man, aged 62 years. While sarcoma of the bladder is most common after middle life and during childhood, it *may* occur at any age. Of 50 cases studied, 26 occurred after the age of 40, and 14 cases under the age of 10. It is more common in males than in females. The most constant symptom is hematuria. Next in order are the symptoms of cystitis and vesical irritation—strangury, frequent and difficult micturition, small stream, retention, and purulent urine. Emaciation consecutive to the growth is present in advanced cases only. A calculus may or may not be present. As a rule, the disease is more rapidly fatal in children than in adults. The most common location of the tumor is at the base of the bladder in the vicinity of the urethral orifice. It is usually sessile, with a broad base, soft and friable, more or less lobulated, and in some cases has a cauliflower or villous appearance. Metastases, as compared with sarcoma of other parts of the body, seem rare, except in quite advanced cases. At the present time, the only hope for cure appears to lie in the early detection of the neoplasm by means of the cystoscope, or by exploratory incision, and its complete removal at this stage of the disease.

60. **Arrest of Growth and Absorption of Epithelioma.**—Randolph reports a case of endothelioma appearing on the posterior aspect of the left forearm which started in the subcutaneous connective tissue, grew steadily and painlessly for six months, and then, for some unknown reason, became arrested. Necrosis or atrophy of the cells of the tumor took place, and later this inactive tissue began to act as an irritant, exciting a productive inflammatory process which endeavored to remove the foreign mass. There was active hyperplasia, with a very marked round-celled infiltration. Very charcteristic was the development of numerous giant cells. Their peculiar arrangement seemed to show that the function of these cells is an absorptive or phagocytic one.

Pennsylvania Medical Journal, Athens.

November.

67 Address in Medicine, Medical Society of State of Pennsylvania. H. Beates, Jr., Philadelphia.
68 Specialism—Its Evils and the Remedy. B. Reed, Philadelphia.
69 Drugs Versus Other Methods of Treatment. T. W. Grayson, Pittsburg.
70 Medical Life in Arctic Alaska. E. W. Kelsey, Philadelphia.
71 Mushroom Poisoning. E. S. Berry, Shippensburg.
72 A Study of Progress in Treatment of Skin Diseases. J. R. McCurdy, Pittsburg.
73 Asthma—Its Varieties and Their Treatment. S. S. Cohen. *Philadelphia.*
74 The Disturbances of Menstruation and Their Significance. E. E. Montgomery, Philadelphia.
75 Remarks on Some New Clinical Methods. H. E. Wetherill, Philadelphia.
76 The Contract Physician; His Use and Abuse. S. Sherrer, Bangor.

December.

77 Damage Suits Against Surgeons. Winters D. Hamaker, Meadville.
78 Treatment of Skin and Glandular Diseases by X-ray. *Russell H. Boggs*, Pittsburg.
79 Inhibitory Action of the X-ray on Malignant Growths. George C. Johnston, Pittsburg.
80 Tubercular Adenitis Treated by the X-ray. George E. Pfahler, Philadelphia.
81 The Post-operative Treatment of Malignant Disease. R. W. Stewart, Pittsburg.
82 Amnesia, Clinical Report of a Case. C. C. Hersman, Pittsburg.
83 Lax Sanitation—the Cost of It. S. P. Hellman, Hellman Dale.
84 Diagnosis of Major Hysteria. Theodore Diller, Pittsburg.
85 Two Cases of *Polyuria Following an Identical* Traumatism J. Chris Lange, Pittsburg.
86 Outdoor Treatment of Tuberculosis at Mont Alto. J. T. Rothrock, West Chester.
87 A Bird's Eye View of the Anti-tuberculosis Work in United States and Canada. J. T. Rothrock, West C

Ophthalmic Record, Chicago.

November.

88 European Eye Clinics. F. E. Brawley, Chicago.
89 *Carbolic Acid and Ammonia Burns of the Eye. E. Stie Pittsburg.
90 Three Cases of Vernal Conjunctivitis. N. Remen, Chicago.

89. See abstract in THE JOURNAL of October 20, 19 p. 1331

Laryngoscope, St. Louis.

December.

91 Diseases of Salivary Ducts and Glands and Their Treat Report of Cases. Robert C. Myles, New York.
92 Grave Hemorrhage Following Tonsillotomy. L. C. Cline dianapolis.
93 Note on the Uses of Rubber in the Treatment of Nasal an Antral Disease. J. Price Brown, Toronto.
94 What constitutes Proper Nasal Treatment in Chronic Ear Diseases. John A. Donovan, Butte, Mont.
95 Ordinary Tonsillotomy. Edwin Pynchon, Chicago.

96 Case of Chronic Purulent Otitis Media, Complicated by [illegible] Jugular Bulb Thrombosis; Opera- [illegible] ''cKernon, New York.
97 [illegible] in Chronic Suppurative Otitis [illegible] :s, Chicago.
98 Purulent Otitis Media Complicating Typhoid Fever. Ewing W. Day and Chevalier Jackson, Pittsburg.
99 Diseases of the Maxillary Antrum; Diagnosis and Treatment. Emil Mayer, New York.

Columbus Medical Journal.

December.

100 Diagnosis of Malarial Fever, with Report of Two Cases. John Dudley Dunham, Columbus.
101 Natural and Artificial Immunity. J. Robert Caywood, Piqua, Ohio.
102 Biliary Obstruction. Dan Gray, Ironton, Ohio.
103 A Study of Metabolism in Five Cases of Dementia Precox (concluded). Eugene F. McCampbell, Columbus.
104 Acute Gastro-enteritis (Acute Gastrointestinal Catarrh) in Infancy and Childhood. J. R. Lyon, Zanesville, Ohio.
105 Angina Pectoris—Report of a Case. Mark Milliken, Hamilton, Ohio.

Iowa Medical Journal, Des Moines.

December 15.

106 What Can We Do to Prevent the Sacrifice of the Innocents? D. C. Brockman, Ottumwa.
107 The Iowa State Board of Health Bacteriological Laboratory. Henry Albert, Iowa City.
108 The Psychic Element in Accident Cases. S. A. Spilman, Ottumwa.
109 Traumatic Neuritis. A. O. Williams, Ottumwa.
110 The Railway Eye: Requirements of and Injuries To Clark W. Hawley, Chicago.
111 Ununited Fractures. L. Schooler, Des Moines.

Woman's Medical Journal, Toledo.

December.

112 Sanitation in Tuberculosis. Sara E. Greenfield, Topeka, Kan
113 Preventive Legislation in Forensic Medicine. Clark Bell, New York.
114 "Change of Climate" for the Tubercular. Eliza H. Root, Chicago.
115 Tuberculosis in Hospitals for the Insane. Anne Burnett, Mt. Pleasant, Iowa.
116 Over-feeding and Exposure to Cold in a Case of Tuberculosis. Eleanor Lawney, Denver.

Virginia Medical Semi-Monthly, Richmond.

December 23.

117 Bowel Repair in Accidental and Pathologic Lesions in Pelvic and Intra-abdominal Operations. Joseph Price, Philadelphia.
118 Surgical Treatment of Cirrhosis of the Liver. Southgate [illegible], Norfolk, Va.
119 Differential Diagnosis Between Streptococcic and Gonorrheal Pelvic Infection, G. Brown Miller, Washington, D. C.
120 Recent Advances in Anesthesia. Reynolds W. Wilcox, New York.
121 Sarcoma of the Orbit; Report of Cases. E. Oliver Belt, Washington, D. C.
122 Perineorrhaphy and Curettage in a Case of Uterus Septus Three Months Pregnant. Edward T. Hargrave, Norfolk, Va.
123 Case of Monstrosity. Wm. Claiborne Powell, Petersburg, Va

Central States Medical Magazine, Anderson, Ind.

December.

124 Arteriosclerosis. J. H. Musser, Philadelphia
125 Nephritis a Curable Disease. J. W. Crismond, Anderson, Ind

The Medical Fortnightly, St. Louis.

December 10.

126 Physiology and Pathology of Biliary Secretion. H. Richard- [illegible]
127 [illegible] F. Chandler, Forest City, Mo.
128 [illegible] y of a Miniature (i. e., Mi- [illegible] J. Clements, Nutley, N. J.

Journal of Medical Research, Boston.

December.

129 Fermentative and Agglutinative Characters of Bacilli of the "Dysentery Group." Philip Hanson Hiss, Jr., New York.
130 Life Cycle of the Organism of "Dermatitis Coccidioides." S. B. Wolbach, Boston.
131 Comparative Study of the Blood Corpuscles of Vertebrates. Ernest Linwood Walker.
132 On the Autolysis of Yeasts and Bacteria. Leo F. Rettger.
133 Porous Tops for Petri Dishes. Hibbert Winslow Hill, Boston
134 Preparation of Broth Cultures for Flagella Staining. Hibbert W. Hill.
135 Effect of Severe Hemorrhage on the Number of Blood Plates in Blood from the Peripheral Circulation of Rabbits. F. L. Richardson.
136 Influence of Cholic Acid on the Excretion of Sulphur in the Urine. Carl L. Alsberg.

Archives of Otology, New Rochelle, N. Y.

December.

137 Surgical Anatomy of the Facial Nerve. H. A. Alderton, Brooklyn.
138 Case of Chronic Purulent Otitis with Cholesteatoma and Numerous Endocranial Complications—Operation—Recovery—Diagnostic Value of Lumbar Puncture. Arnold Knapp, New York.

Medical Examiner and Practitioner, New York.

December.

139 Remarks on the Methods and Purposes of Pension Examinations. S. Houston, Washington, D. C.
140 The Relation of Myocardial and Arterial Changes to Valvular Lesions. H. A. Hare, Philadelphia.
141 Pension Examinations from the Standpoint of the General Practitioner. L. J. Gibbs, Chicopee Falls, Mass.
142 Incidents in the Work of a Medical Examiner. T. H. Bradford, Philadelphia.
143 The Vagus Reflex in Its Practical Application to Life Insurance Examinations. T. A. Mays, Philadelphia.
144 The Function of the Cecum and Appendix. W. MacEwen, Glasgow.

Southern Medicine and Surgery, Chattanooga, Tenn.

December.

145 Chronic Suppuration of the Middle Ear. Frank M. Cunningham, Macon, Ga.
146 Diabetes Mellitus Following Trauma. Alexander G. Brown, Richmond.
147 Fractures at and Near the Elbow Joint. J. B. Murfree, Murfreesboro, Tenn.

Dominion Medical Monthly, Toronto.

December.

148 Address, Canadian Medical Association. R. E. McKechnie.

University of Pennsylvania Medical Bulletin, Philadelphia.

December.

149 The Charity School of 1740—The Foundation of the University of Pennsylvania. C. W. Dulles, Philadelphia.
150 Central Perforation of the Perineum. W. R. Nicholson, Philadelphia.
151 Care of Surgical Cases in the Gynecological Department of the University Hospital. B. M. Anspach, Philadelphia.
152 Value of Anatomy in the Training of the Surgeon. G. G. Davis, Philadelphia.
153 The Course in Physical Diagnosis for Second-year Students in the University of Pennsylvania. A. A. Stevens, Philadelphia.
154 Case of Cancer of the Esophagus Simulating Thoracic Aneurysm. J. A. Scott, Philadelphia.
155 Wire Nail in the Appendix Removed Postmortem. J. A. Lyton, Philadelphia.
156 Case of Uncinariasis. M. H. Purcell and C. A. Fife, Philadelphia.

California State Journal of Medicine, San Francisco.

December.

157 The Ideal of Accuracy in Medical Work; Its Importance and Its Limitations. Richard C. Cabot, Boston.
158 A Contribution to the Study of Varicocele. Dudley Tait, San Francisco.
159 Treatment of Typhoid Fever (Continued). Ray Lyman Wilbur.
160 Myocarditis, with Special Reference to Disordered Metabolism (Continued). W. W. Kerr, San Francisco.
161 Posterior Gastroenterostomy for Simple Conditions of the Stomach. Thomas W. Huntington, San Francisco.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 31.

1 Operations for Diseases of the Uterus and Solid Ovarian Tumors. James Swain.
2 *A Tubal Pregnancy of Some Years' (?) Duration. Sac Containing Macerated Fetus; Fistulæ Between Sac and Bowel and Between Sac and Bladder; Laparotomy; Death. E. H. Fenwick, London
3 The Value and Significance of Certain Signs and Symptoms of Pancreatic Disease. B. G. A. Moynihan.
4 The Lymph Flow from the Pancreas. F. A. Bainbridge, London.
5 *Preliminary Note on the Bacteriologic Findings in Seven Cases of Enlarged Prostate. L. S. Dudgeon and Cuthbert Wallace, London.
6 Remarks on a Case of Gummata of the Heart: Death from Heart-Block; Rhythmical Contraction of the Auricles During the Long Pauses. Henry Handford.
7 Anthropometric Investigation of Hospital Patients (concluded). F. C. Shrubsall.

2. Tubal Pregnancy of Years' Duration.—Fenwick's patient, aged 45, had a large abdominal tumor, fecal urine, pneumaturia, hectic temperature of long duration, and great emaciation and cachexia. On cystoscopy the bladder was found comparatively healthy, but was bulging forward, and under the prominence was a fistulous opening. He made a diagnosis of suppurating ovarian dermoid and cut into the tumor above the pubes. It was evidently intraperitoneal, but adherent to the abdominal wall so that the peritoneal cavity was not opened. Pus, feces and gas escaped in large quantities. After thorough irrigation a bare fetal femur appeared at the incision and then a humerus. A mascerated fetus was felt lying in a puddle of feces, pus and liquid rottenness. Parts of the skull bones were adherent to the walls of the sac and had to be peeled off with some force. The bowels were adherent to the sac and greatly softened. Fenwick packed the cavity of the sac, but the patient died in a few hours. Shortly before her death the patient stated that eight years ago she became

pregnant, and when she was decidedly big she made arrangements for her confinement. The various symptoms of pregnancy, however, gradually disappeared and her abdominal swelling subsided slightly, but for the last seven years she had a large lump in the right side. Three months ago she received a severe blow on this lump, and two days later she had great pain which persisted, causing her to seek medical aid. Postmortem examination showed a left tubal pregnancy which had suppurated, become adherent in every direction and perforated into the bladder and the sigmoid bowel. The sac which had contained the fetus could not be dissected away from the hollow viscera which surrounded it. The bones of the fetus were examined and found to be about the fifth month.

5. **Bacteriology of Enlarged Prostate.**—Dudgeon and Wallace made careful examinations of seven enlarged prostates, with a view to ascertaining whether the condition is the result of infection or not. In 5 of the 7 cases unmistakable signs of infection were found, consisting of pure cultures of the staphylococcus albus in 3 cases and bacillus coli communis in 2. In one of the latter diplococci were also found present. In some instances the infecting organisms were the same as those found in the urine. The authors conclude that, to a certain extent, the results obtained support the view that the initial lesion in prostatic enlargement may, in certain cases, be a septic infection from the bladder.

The Lancet, London.

December 31.

8 The Treatment of Phthisis. Hector W. G. Mackenzie.
9 *Treatment of Streptococcic Puerperal Fever by Antitoxic Serum. Alexander G. R. Foulerton.
10 *Case of Streptococcic Puerperal Infection Treated with a Special Puerperal Antistreptococcic Serum; Recovery. Thomas Rose.
11 *Administration of Antistreptococcic Serum. J. W. Thomson Walker.

9. **Antitoxic Serum in Streptococcic Puerperal Fever.**—Foulerton has found that the relative importance of streptococci in puerperal infections is even more marked than a consideration of previous bacteriologic researches on the subject appears to indicate. He and his associate, Dr. Bonney, have found streptococci of one sort or another in the uterus in 46.3 per cent. of a series of 54 cases examined, and in these cases the organisms were found under conditions which indicated that they were the primary cause of the fever. Excluding the less severe cases of fever occurring after childbirth, and considering only those which either ended in death or were clinically of a distinctly serious nature, they found streptococci present as the presumable cause of disease in 62.5 per cent. Up to the present time they have dealt with 25 stains of streptococci isolated from the same number of cases of puerperal fever, and they have satisfied themselves that among these 25 strains there is more than one distinct species. An antistreptococcus serum was prepared in the ordinary way, the horse having been vaccinated with 5 of the strains. As yet this serum has been used in only a few cases, but among them there have been 2 cases of recovery after extremely severe forms of streptococcus infection. Apart from the failure of serum treatment in puerperal fever arising from uncertainty as to the particular strain of streptococcus which is present, the question of the dosage of the serum employed is of considerable importance. Regarding the matter entirely from the clinical point of view, it would seem that the action of an antistreptococcic serum is purely antitoxic and that the infecting bacteria remain unaffected by the serum and continue to elaborate their specific toxins. In order to neutralize these toxins which are being continuously thrown into the patient's circulation, repeated doses of the serum must be given until the infection comes to a natural termination. Foulerton says it is advisable to commence treatment with an injection of at least 20 c.c., and one must be prepared to repeat this dose, if necessary, at least every twenty-four hours. If no improvement follows two doses of 20 c.c. each, administered within twelve hours, it is useless to persist in administering it. Another brand of serum should at once be tried. Large doses are necessary for any success.

10. **Ibid.**—Rose reports a case of an extremely severe type of streptococcic infection in which there seemed to be no doubt that ultimately recovery was due to the action of an antistreptococcic serum.

11. **Administration of Antistreptococcic Serum.**—Walker finds that the injection of antistreptococcic serum in cases of pure streptococcal infection has been followed by strikingly beneficial results. The variability in the results of the serum unquestionably has been due to the selective activity displayed by the antitoxin of each variety of streptococcus, or to the serum being used too late or having lost its activity from staleness. More uniform results are likely to be obtained from the present compound antistreptococcic serum than from the earlier forms, from the prompt injection of serum at the commencement instead of near the close of a severe infection, and from the use only of serum which has been recently prepared. The administration of the serum for some days after the general symptoms have disappeared in order to avoid a recrudescence. The question of dosage must be judged by the nature of each case and the effect obtained by the injection, but it is important to know that large doses spread over several days have been used without ill effect. The most rational method would seem to be that of a large injection (from 20 to 25 c.c.) on the first occasion, followed by smaller doses as the case may require.

Indian Medical Gazette, Calcutta.

December.

12 *Further Notes on the Treatment of Leprosy by Injections of Leprolin. E. R. Rost, Rangoon.
13 A Short Account of the Various Trypanosomata. A. Lingard.

12. **Leprolin in Leprosy.**—Rost makes a further report on the treatment of leprosy by injections of leprolin. About 120 cases are being treated in Burma. Up to date 14 cases have been discharged as cured at Rangoon. Of 56 cases being treated by Rost 20 have so much improved that they may be said to be almost cured. In every case there has been marked improvement. The order of improvement is usually, first, a return of perspiration in a part previously dry, and then a return of sensation. This return of sensation may be only transient or it may be permanent. But ultimately it always returns on continuing the treatment. Second, there is a gain of strength and loosening of the contractions of the fingers and toes. Cases which have had very severe deformity and loss of power through contraction have completely regained their power and lost the deformity. Ulceration may give way to healing at once. In some cases thickened, hard epidermis has to be cut away before the ulcer heals. Nodules are usually slow to disappear. The color of the skin returns slowly. The pains in the limbs generally vanish early. The mental condition improves remarkably and with this the physiognomy improves. Local reactions after injection vary very much. Rost has given over 1,000 injections, and in no case was there any bad result nor was the disease enhanced thereby. In nearly all the cases the improvement has been obvious; in a few it is rapid, but in the majority the improvement has been slow, but steadily maintained. In some cases he has given as many as sixteen injections, and some cases did not show any sign of improvement until after the sixth injection. The difficulty in making a leprolin of constant strength makes it imperative to increase the dose if it is not found to cause a reactionary fever of over 100 F. The interval between the injections has been restricted to ten days, as some few days seem necessary to allow the patient to recover after the fever, besides which a too rapid recovery must not be expected in a disease which is so remarkably chronic. Evidently the action of leprolin is an antitoxic one and not an auto-antitoxic one. A detailed report of cases pronounced cured is appended to the article.

Revue de Chirurgie, Paris.

Last indexed XLIII, page 1907.

14 (Year XXIV. No. 12. December.) Cas de fistula du canal thyréoglosse (etude clinique et histologique). V. Cornil and Ed. Schwartz.
15 *Influence of Displacement of Kidney on Colon.—Dislocations vicieuses du colon ascendant provoquées par l'abaissement du rein droit; leur mécanisme et les conséquences probables de leur traitement rational. P. Alglave.

16 *Les plaies operatoires du canal thoracique dans la région cervicale (operative injury of thoracic duct). P. Lecène.
17 *Perforation de l'estomac par ulcère (of stomach). F. Gross and G. Gross (Nancy). (Commenced in No. 2.)
18 *Cancer de la thyroide (fréquence, formes cliniques, traitement). Xavier Delore. (First part in Nos. 5 and 10.)

15. Influence of Displacement of Kidney on the Ascending Colon.—Alglave noticed in dissecting a cadaver that the cecum was displaced, swollen and compressed by a movable kidney. The functions of the cecum must have been seriously interfered with during life. Search for similar conditions in other cadavers showed 4 cases in the course of a few days, all in female subjects. He gives a number of illustrations of the findings, showing how the kidney, as it becomes displaced downward, drags down with it the adherent organs and especially the right angle formed by the colon. This kinks the colon. The consequent digestive and intestinal disturbances are not due directly to the displacement of the kidney, but the latter is the indirect cause. Nephropexy removes this cause, but, he adds, it is not always sufficient to remedy the conditions that have become installed, the kink in the colon frequently persisting unmodified by the nephropexy alone. If the kinked loop is much damaged, it may be necessary to exclude the ascending part of the colon by ileo-colostomy or ileosigmoidostomy. The latter is especially indicated when the liver is also displaced downward, and does not permit the intestine to resume its normal place.

16. Operative Injury of Thoracic Duct.—Lecène reports a personal case and reviews 21 in the literature. Operative injury of the cervical thoracic duct is not always perceived at the time of the operation, although the escape of lymph or chyle from the wound usually attracts attention. The patient suffers from thirst, emaciation, general asthenia and sometimes oliguria, the dehydration of the organism causing choleriform symptoms. Only one of the cases on record terminated fatally, and this was in 1875. If the injury is discovered at once, a ligature should be thrown around the peripheral stump of the severed duct. Ligature of the central stump is generally superfluous, as the valves are sufficient. Ligation of the peripheral stump does no harm, as has been established by clinical and experimental experience. The duct was sutured in one instance (Cushing), but this is indicated only in exceptional cases. If the injury is not discovered until later, pressure applied to the wound after removing the drain will generally result in a rapid cure. The wound may be opened and a ligature applied on the duct, and this has been done in some instances, but it is rather difficult and it is easy to cure without it. The success realized by simple, firm tamponing has been so complete that many authors advocate it, instead of ligation, for all cases, but Lecène would reserve it for the cases in which the injury was not noticed until later.

17. Perforation from Gastric Ulcer.—Gross' monograph has been running through the year, with an exhaustive survey of the literature, concluding with summaries of the details of 403 surgical cases. He has operated on 2 cases, with fine results in one instance. In this case there had been no melena nor hematemesis, and no bleeding point was found near the perforation, consequently the latter was merely sutured, without excision, in two tiers with fine silk. The peritoneum was then sponged dry. A drain was left in contact with the wound and another in the Douglas cul-de-sac. The patient was a farmer, 47 years old, a hard drinker, with stomach symptoms for two years. The success was evidently due to the fact that the operation was undertaken within three hours of the perforation. The stomach contents had not had time to induce inflammation of the peritoneum.

18. Cancer of the Thyroid.—Delore of Lyons states that cancer of the thyroid gland is particularly frequent there. He has observed 14 cases during the last three years, and Billiard has collected 83 from the hospital records, 15 in one-half year. The overwhelming majority are in women, and the subjects are generally younger than those with other forms of cancer. In a few cases developing at puberty, the course was fulminating. There is evidently a close connection between the cancer and preceding goiter.

Semaine Médicale, Paris.

19 (XXIV, No. 52, December 28.) Application des principes de la Convention de Genève aux navires hospitaliers (to hospital ships).
20 *Des dangers de l'emploi du naphthol camphré dans la pratique courante. Cazin and Hallion.
21 *Les formes graves de la constipation et leur traitement chirurgical. F. Lejars.

20. Dangers of Camphorated Naphthol.—Guinard has recently reported a case of death less than an hour after injection of 25 c.c. of camphorated naphthol into a supra-clavicular cold, ganglionary abscess. The patient was a young man of 28. Guinard has found records of 12 similar fatalities after the use of this substance. There is a still larger number of cases on record in which convulsions and other symptoms of intoxication occurred, although the patients recovered. The doses were usually large, but in some of these cases not more than .5 c.c. had been injected, and half this amount in the case of one child. Desesquelle, who first used camphorated naphthol, expressly insisted that .2 c.c. for an adult and .1 c.c. for a child was the maximum daily dose. Disregard of his directions has led to accidents. Cazin and Hallion have been studying its toxic action on laboratory animals, and their results corroborate the experiences in the clinic. They conclude that one or two drops are enough for a ganglionary abscess, and a few drops in the drain tube leading to the peritoneum or pleura—no more under any circumstances. With these restrictions, camphorated naphthol can retain its place in the treatment of various affections in which it has proved its usefulness.

21. Surgical Treatment of Severe Forms of Constipation.—Lejars reviews some recent articles on this subject and styles constipation the "ill of the century." Surgical intervention, suppressing part of the large intestine, excluding or excising it, is a comparatively simple and benign operation, when done in two operations, first curing the stercoremia before completing the task. He adds that the large intestine, like the appendix, is an ancestral organ, ill suited for the conditions of modern life, and that it is destined to retrogress, atrophy and finally disappear. Like the appendix, its only function is becoming more and more merely a pathologic function. Surgery, in removing these organs, merely hastens the natural progress of evolution.

Berliner klinische Wochenschrift.

22 (XLI, No. 51, December 19.) Digalen, ein Ersatzmittel des Digitalis-Infuses (substitute). E. Bibergeil.
23 *5 Fälle von Tumoren des Central-Nerven-Systems. Graeffner.
24 *Ueber hysterische Schlafzustände (sleep). Raecke (Kiel).
25 *Ueber Hypochondrie und hypochondrische Zustände. A. Schott.
26 *Psyche und Psychose. [illegible] nced in No. 50.)
27 Vorläufige Mittheilung [illegible] am Pferde (inoculation of horse).
28 *Zur Prognose und Therapie des Diabetes mellitus. de la Camp.
29 (No. 52.) Mechanismus der inneren Darmstrangulation (strangulation of intestine). J. Kertesz.
30 *Syphilis as Professional Affection of Physicians.—Syphilis [illegible] Aerzte. A. Blaschko (Berlin).
31 [illegible] f Rooms.—Vereinfachung der Hei[illegible] llossenen Räumen. W. Albrand.
32 [illegible] des Ficker'schen Typhus Diagnostikums (advantages and disadvantages). W. J. Guttler. (Commenced in No. 51.)
33 Practical Progress in Physicotherapy.—Staungshyperämie: Wärme und Kälte: Gas- und Wechselstrombäder. A. Laquer.

23. Brain Tumors.—In 2 of the 5 cases described the tumor was a cholesteatoma at the base of the brain. The patients were 40 and 45 years old; the structure of the tumors, their location and relations to the brain, and the microscopic and chemico-microscopic findings, sustain the assumption that cholesteatomata of the central nervous system originate in aberrant fetal epidermis germinal tissue.

24. Hysteric Sleep.—Raecke reviews 23 cases of hysteric sleep or somnolency. In 10 it had been preceded by hysteric convulsions; in 7 there were attacks of lethargy, while 6 others presented a protracted hysteric stupor which only at times appeared to be sleep, and alternated with periods of delirious confusion or general inhibitions with partial loss of consciousness. Hysteric conditions may be differentiated from epileptic similar conditions by the behavior during the intervals and by the history of the case, with examination of the pupil and of the tendon reflexes and evidences of old injuries, scars on the tongue, recent bruises or ecchymoses and the Babinski sign. It is difficult sometimes to distinguish between hysteric and catatonic stupor, but hysterics are more liable to assume comfortable positions, to attend to their bodily needs, to rouse at mealtimes and to display a certain amount of interest in their surroundings. Positive differentiation is possible only when the existence of hysteria can be determined aside from the stupor.

25. **Hypochondria.**—Schott regards hypochondria as an expression of degeneration, and warns against medication for it as a rule. When it accompanies a curable psychosis, it generally presages a protracted course. All peripheral sources of irritation should be removed in case of hypochondria so far as possible, and it should be borne in mind that the hypochondriac *is liable to commit suicide or to injure himself or those around* him.

26. **Psyche and Psychoses.**—Kronthal argues that the nervous system is a collection of innumerable routes for reflex action. The centers in the brain are merely the points where the circuit is closed between the sensory and the motor nerves. He asserts that the entire nervous system is merely a combination for the conduction of stimuli. This explains the decussation of nerves, as their crossing multiplies the number of possible reflexes. The sum of all the reflexes is the psyche. When an individual reacts in an abnormal manner to the impressions of the outer world we call the condition a psychosis. He adds further that sleeping and waking have nothing to do with the central nervous system. The individual sleeps when his cells are weary, intoxicated and unable to react further. He wakes when his cells have recuperated. He dreams when his cells react imperfectly to stimuli. Psychoses can occur without any participation of the nervous system. As the psyche is the sum of all the reflexes, a psychosis is inevitable when a number of the elementary organisms, the cells constituting the individual, respond to stimuli with an abnormal reaction. The reactions throughout the body become different with a varying temperature. In fever we should, therefore, expect an altered sum of reflexes, an altered psyche, and we find it in the delirium of fever. In alcohol intoxication likewise, the cells behave differently from normal, and the sum of the reflexes—the psyche—is likewise abnormal. When certain of the cells respond sluggishly and others with excessive excitability, we call this condition hysteria. He reviews the conditions in other affections viewed from this standpoint, affirming that this theory supplies a solid scientific basis for treatment of psychoses. They are merely the morbidly altered reaction of the individual, the result of a morbidly altered condition of the body. If we can succeed in making the body react normally once more then the psyche, the sum of the reflexes, will become normal again. There is nothing mystic about the psyche. It is merely the sum of the reflexes, and study of physiology and allied sciences is making physicians better and better acquainted with the reflexes and with the means of influencing them.

28. **Prognosis and Treatment of Diabetes.**—De la Camp reviews recent progress in this line, dwelling particularly on Naunyn's axioms: "The assimilating capacity of a diabetic decreases with *persistent glycosuria," and "The assimilating capacity* improves with persisting aglycosuria." They emphasize the importance of reducing the output of sugar as the main essential in treatment. Naunyn further affirms that every diabetic who requires treatment at all, should have his diet regulated both as to quality and quantity. It often happens that a patient is seen for the first time after some trauma, excess or other injurious influence, and the affection is supposed to be severe when it subsides afterward into a much milder form. Others give the impression of being mild, but grow rapidly worse. Such subjects are generally young. Even when the diabetes apparently subsides completely, it probably still persists in a latent form. The glycosuria may vanish when nephritis becomes installed, but this is no gain for the diabetic. Pregnancy is an unfavorable complication. Roff states that 50 per cent. of pregnant women suffering from diabetes succumb in coma. Progress has been realized in the dietetics of diabetes by von Noorden's discovery of the remarkable tolerance of diabetics for oatmeal. (See The Journal, xli, page 1374.) De la Camp has observed a case in which a woman, 35 years old, gained over ten pounds in weight in three weeks on a daily ration of 250 gm. oatmeal, 100 gm. butter and 4 eggs, a total of 2,500 calories. She had 8.1 per cent. sugar in 3,200 c.c. urine smelling strongly of acetone. The output of carbohydrates was 259, with an intake of 293. She was given from 20 to 60 gm. of sodium bicarbonate a day, the larger amount being necessary to render the urine alkaline. The output of sugar and the acidosis remained at the same figures, without retention of water.

30. **Syphilis Acquired by Physicians in the Exercise of Their Profession.**—*Blaschko states that he has had occasion* to observe 12 cases of syphilis in physicians during the last ten years, acquired in the exercise of their profession, 10 in Berlin alone. As the primary sore develops on the fingers as a rule in these cases, it is generally unrecognized and taken for a panaritium. Its nature is first suspected by its protracted course, the bluish infiltration and the aspect of the depths of the lesion. In 2 cases there was mixed streptococcus infection, with a torpid lymphangitis and numerous small superposed buboes. Herpes on the finger, cadaver tubercle and soft chancre present different symptoms, the first being preceded by neuralgia in the nerve involved and the entire process terminating in about ten days. Soft chancre rapidly heals under carbolic acid and iodoform. In other cases the syphilitic primary sore was very small and soon healed without a scar. The outbreak of general symptoms or the development of very large indolent buboes was the first sign that attracted attention. In one case the primary sore was on the face. In another instance a roseola broke out over the entire body without any premonitory signs of trouble, and not a single point of entry for the virus could be discovered on the patient. He was a very careful, conscientious and painstaking physician, and the fact that such a trained observer was unable to discover the portal of entry for the virus suggests the possibility of a syphilis without the primary lesion, the "*syphilis d'emblée*" of the French. The infection seems to have been generally acquired during the extirpation of a bubo or something of the kind. None was referable to infection from an instrument which had recently been used on a syphilitic subject, although such a possibility should never be ignored. The erosions at the base of the nails from scrubbing were generally the entering point. The danger from this source is particularly great in case of abortions or of premature births, as these so frequently occur in syphilitic women. In one case infection was unmistakably derived from dissection of a syphilitic cadaver twenty-four hours after death. Blaschko urges that every physician should bear in mind the possibility that the patient before him may be a syphilitic in every case in which he has to use the knife or to make a bimanual examination. At present only those particularly engaged in practice among syphilitics ever seem to think of this possibility. Modern methods of cleaning the hands invite erosions, etc., and he thinks that too little stress is placed on cleansing the hands *after* operations, and that they suffer from the excessive scrubbing before. *Every wound, every crack,* should be carefully covered. His practice is to touch them with a 2 to 3 per cent. solution of silver and thus produce an impermeable covering of silver albuminate. This he covers with a small scrap of adhesive plaster with collodion outside or, better still, a finger cot. He advises rubber gloves or cots for all gynecologic examinations in the interests of both patients and physician. When infection has once occurred, silver nitrate and sublimate, even at once, have proved ineffectual to abort the process. His practice is to rinse the scratch copiously with water and then pour tincture of iodin into the wound. Possibly hydrogen dioxid might be effectual. He once used on himself an electrolytic needle when he received a scratch while

puncturing a bubo. He burned out the spot the next day with the actual cautery and never has heard anything further from it. He believes in treating syphilis only when indicated by symptoms. His medical patients were inclined to err on the side of excessive treatment. and severe physical and psychical depression was the result in some instances. He thinks that the fact of the existence of the syphilis need not interfere with the subject's professional work under certain obvious restrictions as, for instance. when there are lesions on the hands. The physician himself is usually the best judge as to this. He does not know of any instance in which the disease was transmitted farther by the physician affected His family life suffers more than his professional. but the medical profession, Blaschko adds, frequently requires great sacrifices from its members. and experience has shown that they are borne with courage and dignity even under these circumstances

Münchener medicinische Wochenschrift.

34 (LI, No 49, December 6.) *Zur vaginalen Ovariotomie O Bürger.
35 Ueber die Anwendung des Pyramidon beim abdominal Typhus [illegible]
36 Nc [illegible] Suppuration in Accessory [illegible]
37 Zu [illegible]
38 Ue [illegible] shilfe (dangers of [illegible]
39 Kollargol-Pinselungen [illegible]
40 Ein Universal-Suspensorium. Bernstein
41 (No. 50) *Was leistet die Leukozyten Untersuchung im Frühstadium der Appendizitis. Federmann
42 *Ueber intermittierende cystiche Dilatation der vesikalen Ureter-Enden. F. König.
43 *Zur Behandlung der knöchernen Versteifung des Ellbogen gelenkes (ankylosis of elbow) A. Schanz
44 *Ueber Klima und Lungen-Tuberkulose G Besold
45 Antipyrin Colored Sweat—Ueber einen Fall eigentumlicher [illegible] Platter
46 *To [illegible] ponges in Operations—Zur Ver [illegible] von Kompressen in der Bauchhöhle. Calmann
47 Ein neuer dermatologischer Universal-Thermokauter J Weinberg (Berlin).
48 *Heredity of Syphilis—Ein Beitrag zur Lehre von der Vererbung der Syphilis. Jesionek (Commenced in No 49)
49 Vaccination in Bavaria.—Bericht über die Ergebnisse der Schutzpockenimpfung im Königreiche Bayern im Jahre 1903. L Stumpf

34. **Vaginal Ovariotomy.**—Bürger reports from Schauta's clinic 110 cases of ovariotomy by the vaginal route. The contraindications accepted are the same as in other clinics, with the exception that Schauta prefers the vaginal operation even for cysts filling the entire abdominal cavity, if there are no contraindications of other kinds. The particulars of the various groups of cases are described, the results, immediate and remote, confirming the opinion that vaginal ovariotomy is a harmless operation. with a rapid and smooth recovery, which does not entail any appreciable consecutive disturbances Menstruation recurred in the 22 women examined in this respect in an average of about five weeks, while the average after abdominal ovariotomy has been ten and eleven weeks in his experience.

41. **Leucocyte Count in Appendicitis.**—Federmann emphasizes that a high leucocytosis in the first days of appendicitis indicates that the organism is actively at work struggling with its invaders. An operation undertaken in these conditions has a good prognosis. His experience has been that a high leucocyte count indicates a severe infection, but is no criterion as to the presence of pus.

42. **Intermittent Dilatation of End of Ureters.**—König writes from Altona to describe a case of urinary disturbances in which the cystoscope showed that the vesical end of the ureters became intermittently dilated, forming a cyst, which finally emptied its contents under vigorous contractions of the bladder wall. the cyst subsiding completely, leaving the orifice normal. The lower end of both ureters was evidently dilated and as urine accumulated the cyst formed. He has found 50 similar cases recorded in the literature. His patient was an otherwise healthy man who had suffered from childhood with desires to urinate and difficulty in urinating. During the last year blood and hemoglobin were noted in the urine after exertion Garré operated on such a case, curing his patient, a young man. of serious urinary disturbances

43. **Cure of Stiff Elbow.**—Schanz operated on the elbow as usual, but to prevent recurrence of the ankylosis, he interposed between the raw surfaces of the bones a pedunculated flap of subcutaneous adipose tissue, tying it in place so that it could not slip out. The cast was removed in about a month; in three weeks the patient could use her arm freely and in three months after the operation could brush her hair, eat, etc., with apparently normal function of the arm. There was no pain at any time. The thick flap prevented the growth of connective tissue adhesions, while its porous character allowed movements impossible with a denser tissue. It is possible that a kind of bursa may have formed in the fat. He expects to apply this technic to other joints as occasion arises.

44. **Climate and Tuberculosis.**—Besold thinks that better results will be realized when more attention is paid to individualized treatment and less to climate in tuberculous cases.

46. **To Prevent Leaving Sponges in Abdomen.**—Calmann has a long tape fastened to each of his compresses and sponges The ends of the tapes are taken up in a bunch and tied around one of the legs of the table, at the head, on the side where the instruments are handed to the operator. The tapes are long enough not to interfere with the use of the sponges in any way.

48. **Heredity of Syphilis.**—Jesionek has had occasion to observe several occurrences which have convinced him that the semen of a syphilitic is able to induce contact infection. Also that the semen can transmit the syphilis of the father to the offspring. He thus accepts paternal transmission of the disease and the "choc en retour," that is, infection of the mother from the infected fetus. Among the evidence which he cites to support this view is the family experience of a physician—a trained observer—after professional infection from an obstetric case.

Zeitschrift f. klinische Medicin, von Leyden's, Berlin.

Last indexed XLIII, page 1668

50 (LIV, Nos. 3-4.) Variations in Experimental Toxic Anemias According to the Age [illegible] urch das Alter der Organismen [illegible] der experimentell erzeugten [illegible] h.
52 Vital and Postvital Bl [illegible] Blutfarbung und deren Ergebnisse bei Erythrocyten und Blutplattchen. H. Rosin and E. Bibergeil.
53 Iodin Reaction of Blood and Blood-forming Organs.—Untersuchungen uber die Iodreaction des Blutes und der hema [illegible] A. Hirschberg.
54 *Dc [illegible] euckocytose; das Verhalten der neu [illegible] beim Carcinom. J Arneth.
55 Fatigue of the Visual Field—Ueber Gesichtsfeldermudung. K. Kroner.
56 Acute isolirte interstitielle Myocarditis. L Sellentin. Two cases.
57 Causes of Death After Removal of Both Kidneys.—Die Ursachen des Todes nach doppelseitiger Nephrectomie. H. Couvée (Utrecht).
58 Colica intestini coeci, ein wohlcharakterisirter, selbstständig auftretender Symptomencomplex. A. A. Christomanos.
59 Iodic Acid Reaction of Acetic Acid in Diabetic Urine.—Iodsäurereaction auf Acetessigsäure im diabetischen Harn E. Riegler.
60 (Nos 5 6.) *Der Blutdruck im Verlaufe der Arteriosklerose (blood pressure). T. Dunin (Warsaw).
61 *Verfahren zur Messung des diastolischen Blutdrucks und seine Bedeutung fur die Klinik (measurements of diastolic blood pressure). J. Strasburger (Bonn).
62 *Ueber die Bakteriämie [illegible] Untersuchung für die Klin [illegible]
63 Tumor der Hypophyse [illegible] R. Berger.
64 Die Analyse des Phlebogrammes eines Falles von Herz Allorhythmie A. Belski (Pskow).
65 *Ueber Sigmoiditis. T. Rosenheim.
66 *Hematology of Infectious and Other Diseases—Ueber das Auftreten der Myelocyten im Blute C. Schindler (Berne)

54. **Cachectic Leucocytosis.**—Arneth tabulates the blood findings in 12 cases of cancer, mostly gastric cancer. They show that secondary anemia and cachexia may develop in case of uncomplicated cancer without much impairment of the leucocytes or influence on their numbers. But the coincidence of a complication affects the leucocytes materially, the blood then presenting the aspect which he has previously described as anisohypocytosis or anisohypercytosis. In one extreme case, the carcinosis involving the entire body, the reds presented the aspect of true pernicious anemia, while the neutrophile leucocytes presented that of leukemia. In future a distinction must be made between the blood findings of uncomplicated cancer and those for which the complications are responsible.

60. **Blood Pressure in Arteriosclerosis.**—Dunin has measured the blood pressure 1,000 times in 440 patients with arteriosclerosis, in his private practice. He used Gaertner's tonometer exclusively. In 120 out of 420 arteriosclerotic subjects he found the blood pressure normal or below. In all the other patients the blood pressure was above normal. In 36 out of 80 cases with low blood pressure angina pectoris was observed. In 8 cases the sharp accentuation of the aortic second sound was the only symptom on the part of the vascular system. The blood pressure in this group was only 90 mm. to 140 mm. The first sound was weak. In 2 patients there was also a diastolic murmur. None in this group complained of any heart trouble. In another group of 14 cases there were pronounced subjective disturbances and corpulence, and changes were found in the heart, or aorta, with signs indicating dilatation of the arch of the aorta and sometimes also of the aortic orifice. A further group of 22 presented the same findings with the exception of the corpulence. In all his cases of normal or low blood pressure the arteriosclerosis was evidently restricted to the large arteries, while the smaller were intact. Most of the patients were middle-aged. although some were quite young. In 35.7 per cent. of 380 cases of arteriosclerosis corpulence was noted, the proportion being higher among the subjects with high blood pressure. Reduction of the corpulence frequently restored the pressure to normal. Functional over-pressure he found very rare. Therapeutic measures to reduce the blood pressure were seldom successful except in cases of corpulence, although the general condition was much benefited by hygiene and measures to tone up the nervous system and the heart muscle. So long as the heart is sound and vigorous the changes in the arteries are effectually compensated. Long-continued over-pressure entails hypertrophy of the left ventricle, although it may not be clinically evident. Measurement of the blood pressure may thus determine the size of the heart better than mere percussion. He found the pulse rapid in 40 out of 136 cases of high pressure. In one instance the pressure was 240, the pulse 200; in another, with a pressure of 250, the pulse was 120. Fully 25 per cent. of these patients were neurasthenics. Tachycardia with high pressure presages the approach of disturbances in compensation.

61. **Measurement of Diastolic Blood Pressure.**—Strasburger's technic differs from Janeway's and Masing's in that he uses the palpating finger instead of the sphygmograph, and, instead of determining the average blood pressure, lays most stress on the extremes found. Comparison of the height of the diastolic pressure with that of the systolic pressure, and determination of the blood-pressure quotient, show the reciprocal relations between the tension of the vessels and what the heart is able to accomplish. The condition of the circulatory system can be ascertained by study of the systolic pressure and of the blood-pressure quotient better than by any means known to date, especially in respect to the functional capacity of the heart and the blood supply in the tissues. He states that such results have been obtainable hitherto only by measuring the blood pressure in the severed artery of a living animal. His "pressure quotient" is obtained by subtracting the diastolic pressure from the systolic, the remainder found being what he calls the "pulse pressure." The ratio between the pulse pressure and the maximal pressure is his "blood pressure quotient." It affords an insight into the relations between the work accomplished by the heart and the resistance in the arterial system. He tabulates the findings in a large number of cases of various affections and in normal subjects. He also shows in a diagram the various conclusions that may be deduced from the different groups of findings.

62. **Bacteriemia.**—Jochmann reviews the results of bacteriologic examination of the blood on a large clinical material. They demonstrate the great importance of this means of investigation, both from a diagnostic and prognostic standpoint and also as a guide for treatment. His findings in 161 clinical cases and 70 cadavers have convinced him that scarlet fever is not a streptococcus affection. As germs in the blood increase rapidly immediately after death, the frequent negative postmortem findings, even in the fulminating cases of scarlet fever, were very significant. His findings were also negative in 18 cases of acute articular rheumatism. Even the exudation aspirated from the joints in 11 cases always proved sterile. The bacteriemia is sometimes the only sign of typhoid fever, and is almost constant during the acme of typhoid. Gonococci were found in the blood in 2 out of 3 cases of gonorrhea, one patient recovering.

65. **Sigmoiditis.**—Rosenheim relates the particulars of 11 cases, showing the importance of direct inspection of the sigmoid flexure in dubious cases of intestinal trouble. It may reveal a local inflammatory process restricted to this region and amenable to treatment. Rest, oil injections, belladonna and morphin aid in inducing a complete cure. Pains in the left side, diarrhea or constipation and fever, sometimes local hemorrhages, may be the principal symptoms. He uses the endoscope when introducing the tube for local medication.

66. **Myelocytes in the Blood.**—Schindler's extensive research has shown that conditions inducing leucocytosis may cause the myelocytes to pass into the blood. This is currently observed in infectious diseases, and has no special significance if the myelocytes vanish as the leucocytosis subsides. If they persist, their presence indicates functional exhaustion of the elements of the marrow. The toxins of certain diseases, typhoid fever and malaria, have an inhibiting action on the leucocyte-forming tissues. The myelocytes appear in this case as the evidences of abnormal reaction on the part of the marrow to the irritation. In malaria, his findings show that the leucocytes increase as the temperature rises and diminish during the intervals. In some cases of malaria the blood findings are exactly like those of pernicious anemia.

Riforma Medica, Palermo.

Last indexed XLIII, page 1830.

67 (XX, No. 43, October 26.) *Sul valore semeiologico dell' urea [illegible] ""e lesioni epatiche. S. De Rossi [illegible]
68 *Per la c[illegible] della vescica (exstrophy of bladder). G. Muscatello (Pavia).
69 Considerazioni terapeutiche intorno a 2 casi di flebite degli arte inferiori (of legs). R. Ottolenghi (Turin).
70 (No. 44.) L'influenza dell' anemia sperimentale nelle infezione. G. Dragotti.
71 Sul carcinoma delle grande vie biliari (of large biliary passages). G. Scagliosi.
72 Influence of Exclusive Milk Diet on the Circulation of the Blood.—Influenza del regime latteo assoluto sulla circo- [illegible] C. Colombo (Rome).
73 [illegible] richerche sui corpi di Negri in rapporto [illegible] rabbia (of rabies). L. d'Amato (Naples).
74 [illegible] in Formol Intoxication.—Le alterazioni [illegible] :rezione dell' epitelio dei tubuli contorti nell' avvelenamento da formolo. L. Girolamo (Palermo).
75 *Su l'efficacia terapeutica del cloruro di bario (barium chlorid). E. Pesci (Turin).

67. **Urea and Ammonia in Symptomatology of Liver Lesions.**—De Rossi reviews the present status of our knowledge on this subject, and analyzes four instructive cases. He thinks that it is established that all the organs form urea in proportion to their size and their nutrient interchanges. It is not the property of the liver alone. Also that the albumin molecule takes various ways to form urea, and not merely that of the ammonium salts alone. Also that the elaboration of urea is, in all probability, not a simple process and, above all, not a single one. The nitrogenous compounds in the urine vary in individual cases of liver affections according to the general conditions of metabolism, not necessarily merely according to the lesion in the liver. The only finding that occurs with any regularity in these cases is an increased amount of NH^3. But even this finding is not directly proportional to the liver lesion, but depends more on the condition of the circulation and on the acidity of the tissues. The practical conclusion from the above is that alimentary ammoniuria is not a reliable test of the functioning of the liver.

68. **Operation for Exstrophy of Bladder.**—Müller proposed in 1903 a mode of operating on subjects with extroversion of

the bladder, but he had not attempted to execute it on the living subject. Muscatello here reports a case in which he followed the suggested technic with one slight modification. The results compel him to rank it above all other methods yet presented. Its principal advantage is that it protects the ureters against contact with feces after they have been transplanted in the sigmoid colon. This is accomplished by dividing the colon and suturing it together again after exclusion of a short portion. The part of the bladder containing the trigone and the mouths of the ureters is then transplanted in the excluded portion of the colon. This brings the ureters into a blind pouch at some distance above the point where the mouth of the pouch opens into the sigmoid colon. The top of the blind pouch formed by the excluded part of the gut is fastened with a few stitches to the colon above the anastomosis, thus retaining the connection between the excluded portion and the rest of the bowel. Müller proposed to fasten the excluded portion to the anterior abdominal wall, which might result in the kinking of the ureters, etc. The patient in the case described had been treated by the Maydl technic at first, but without success. The second intervention, according to the Müller technic, resulted in a complete cure of his deformity. The wound had healed completely in less than four weeks. The article is illustrated.

75. **Barium Chlorid in Therapeutics.**—Pesci has been testing barium chlorid in 40 cases of various affections, including 11 of pleurisy, 8 of valvular defects, 4 of myocarditis, 3 of typhoid, etc. He studied the temperature, pulse, respiration, arterial pressure, urine and ingestion of fluids in the various cases while under the influence of the drug. The results confirm those reported by Schedel, Tabora and others in respect to the efficacy of barium chlorid as a pressure-raising drug and diuretic. The pressure was raised from a few mm. to a maximum of 60 mm. in his experiences, both clinical and experimental. It rose a few hours after taking the chlorid, and constantly increased to a maximum at which it persisted for three or four days, then gradually subsided, but still kept for a time longer above the previous figure. In the very severe cases the pressure sank after the first rise —a sign of grave prognosis. In some cases there was no appreciable action on the pressure, but the general condition showed marked improvement, sometimes with diuresis. In every case, however, the pulse tracings assumed a more normal type, the pulse findings explaining the general improvement that followed the use of the drug. No injurious action was noted in any case. The prompt diuresis that followed in cases of pleurisy was the most gratifying result noted, in some instances the benefit being truly marvelous, the amount of urine excreted increasing from 1,000 to 4,000 c.c. The dosage was 43 cg. in three days, 60 cg. in four days, or 32 cg. in three days. He advocates the drug, therefore, as the best diuretic for pleurisy, the benefit being prompt, constant and superior to that of any other diuretic with which he is familiar. The drug is also indicated in the first stage of disturbance of compensation in a valvular affection, when the circulation is sluggish and the relaxed walls of the arteries allow infiltration of the tissues. Barium chlorid stimulates the musculature of the walls of the arteries. It is also useful for the same reason in infectious disease when the pulse is becoming dicrotic from relaxation of the walls of the vessels and weakness of the intoxicated myocardium. Barium chlorid arrests these disturbances or prevents them by its beneficent influence on the disease itself Excessively high blood pressure with weak heart is the only contraindication.

Sei-I-Kwai, Tokio.

Last indexed page 255.

76 (XXIII, No. 2.) Tubercular Disease of Breast. Nakamura.
77 Japanese Casualties at the Battle of Port Arthur.
78 (No. 3.) The Japanese Red Cross.
79 (No. 4.) Observations of Infective Myositis in Japan. Ito and Kaminaka. (Concluded.)
80 (No. 6.) *Study of the Anopheles During Hibernation—Untersuchungen über die Anopheles im Winterschlaf. K. Suzuki. (Concluded.)
81 (No. 7.) The Wounded in the Naval Battles. Ibid.
82 (No. 8.) *General Sketch of [illegible] Hospital Ship Kobe-Maru. Arrangemen[illegible]ents.
83 (No. 9.) Case of Whooping [illegible] Anatomy.
84 (No. 10.) *Statistics of Japanese Naval Officers and Men Killed or Wounded in Present War.

80. **The Anopheles During Hibernation.**—The results of extensive personal research are given in this illustrated article. Suzuki thinks that the female alone survives the winter. It usually contains fertilized eggs, and as soon as it regains its vitality, when thawed out by warm weather, it lays the eggs. He found mature eggs in both the anopheles and culex during their hibernation.

82. **The Japanese Hospital Ship.**—This floating hospital has been described previously in THE JOURNAL. It did good service during the war of 1894-5 conveying the wounded from the seat of war to the home hospitals. In the illustrated description we note that 126.5 cubic feet of space are allotted to each patient in the general room, while the seriously wounded have each 416 cubic feet and the infectious cases 266.5. The Sei-I-Kwai urges the necessity for installation of a refrigerating machine and electric fans, to complete the equipment.

84. **Killed and Wounded in Japanese Navy.**—The tables give 1,022 killed and 556 severely wounded, the total injured being 2,321. Six navy surgeons have been killed and six have had dysentery or typhoid fever. Thirteen "medical attendants" were also killed and the same number have had some infectious disease. The medical cases all recovered. The statistics cover the period from Feb. 9 to Oct. 10, 1904. They are grouped by the various engagements, almost all at Port Arthur.

Medicinskoe Obozryenie, Moscow.

Last indexed XLIII, page 642.

85 (LX, No. 21.) *Malarial Affections of Nervous System.—K [illegible] bolyevaniyakh nervoi systemi. V. [illegible]
86 *Ob [illegible] anatomii ostrago endocardita. E. [illegible]
87 (No [illegible] O polnoi promezhnostnoi pros[illegible]
88 *Chronic S[illegible] etiologii chronitcheskago gn[illegible] kazuistikye aneurizmi arteriæ [illegible]
89 K vopros[illegible] arcinomatosa. M. P. Kandolovsky.
90 *Cancer ampullæ Vateri. N. E. Kusheff.
91 Yohimbin in 20 Cases of Nervo[illegible] O [illegible]apeutitcheskom dyestvoi yohimbina [illegible] bezsilii na nervoi potchvy. E. He[illegible] (V[illegible]).
92 Three Cases of Coincidence of Cancer and Tuberculosis.—K voprosu o sovmyestnosti raka i tuberculeza. M. O. Guberman.
93 (No. 23.) *Sudden Death in Diphtheria.—O pritchinye smerti pri diphtherii. V. Krasnoff.
94 *Ocular Symptom of Diffuse Sclerodermia.—Novii glaznoi symptom razlitoi sklerodermii. C. N. Lozhetchnikoff.
95 *Bone Growth in Heart Valves. [illegible] kosti v serdetchnikh zaslonkakh.
96 (No. 24.) *Ob etiologii i [illegible] herno- Schwartz and Lunz.
97 Pemphigus acutus. L. Rotchmaninoff.

85. **Malarial Affections of Nervous System.**—Dobrokhotoff's article reviews the various nervous affections due to the malarial parasite, the clinical pictures drawn from his own experience and study of the literature. The malarial psychoses generally develop with depression; neuralgia, neuritis and localized focal affections of the central nervous system are not rare. More diffuse troubles, such as multiple sclerosis, also occur as the result of malaria. He gives the details of a striking case of malarial multiple sclerosis. The parasites in the circulation injure the endothelium of the vessels either directly or by their toxins, or by the products of the destroyed red corpuscles. The changes thus induced in the endothelium cause thrombosis in the capillaries, and injure the walls of these vessels. The capillaries in the brain are particularly liable to these injuries, with consecutive hemorrhages. He thinks that these changes in the capillaries explain the conditions noted in the parenchymatous elements of the liver, spleen, kidneys and ganglion cells in malaria. The prognosis is favorable for these nervous affections on a malarial basis, with the exception of the comatous form. They gradually subside under quinin to apparently complete restitution.

86. **Acute Endocarditis.**—Martzinovsky believes that acute endocarditis may result from the action of one or more of several bacteria. At least 10 c.c. of blood should be taken for bacteriologic examination, as the number of microbes in the blood is not necessarily large. Both aërobic and anaërobic cultures should be made, and a negative result does not exclude endocarditis. He was able to discover a connection between the endocarditis and erysipelas, with streptococci, in one case, and between a diplococcus endocarditis and croupous pneumonia in another. He found acute endocarditis in about half of his cases of rheumatism, but the bacteria differed in the various cases, so that the assumption of a single causal germ for acute articular rheumatism seems highly improbable. In his experience, acute endocarditis was frequently followed by progressive anemia and icterus, with urobilin, albumin and casts in the urine. The most promising treatment for acute endocarditis seems to be with an appropriate serum, but this will require early and repeated examination of the blood to disclose the kind of antiserum needed. His article is based on a study of 30 cases.

87. **Perineal Prostatectomy.**—Gerzen reviews the literature on this subject, including much of the American, and describes a case of his own. He commends the perineal operation to his countrymen as destined to an important place in the treatment of enlarged prostate.

88. **Epididymitis.**—In a case described by Krimoff a trauma had induced aneurism of the spermatic artery and epididymitis. The latter may be due to gonorrhea, tuberculosis, syphilis or to casual microbes, as he demonstrates from his experience.

90. **Cancer of Vater's Ampulla.**—Kusheff asserts that cancer at this point can be diagnosed from the progressive emaciation of the subject with icterus but no fever nor catarrhal symptoms on the part of the stomach or intestines. In 2 cases described, cholelithiasis could be excluded as also hypertrophic cirrhosis of the liver. There was no ascites, and no tumor could be palpated. His patients were men of 57 and 75, respectively. The cancer in each was an adenocarcinoma.

93. **Sudden Death in Diphtheria.**—Krasnoff's experimental researches have resulted in a confirmation of his belief that sudden death in diphtheria is due to paralysis of the diaphragm.

94. **Eye Symptom of Diffuse Sclerodermia.**—Lozhetchnikoff calls attention to the bilateral, symmetric immovability of the eyeball in diffuse sclerodermia. The process has evidently involved the muscles of the eye when this stage is reached. He observed this symptom in a girl of 17, and she improved under hot baths and massage until even the eye symptom entirely disappeared. He reports the case as one of cured sclerodermia.

95. **Bone Formation in Heart Valves.**—In the 4 cases described there was an unmistakable formation of bone in some of the valves and even in the heart itself. The subjects were elderly men.

96. **Etiology of Chorea.**—Study of 124 cases of chorea at the Moscow hospitals has established, to the satisfaction of these authors, that articular rheumatism, endocarditis and chorea form a triad for which one and the same cause is responsible.

Roussky Vratch, St. Petersburg.

Last indexed XLIII, page 851.

98 (II, No. 48.) O hedonal-chloroform narcozye. N. P. Kravkoff.

99 Primary Cancer in Vagina with Metastasis Probably by Contact.—O pervitchnom rakye vlagalishtcha v svyazi s utchenlem o prevlvaemosti raka. V. V. Diakonoff.

100 Varying Capacity of Pravaz Syringes.—Po povodu emkosti prodazhnykh shpritzev Pravaz'a. I. V. Sokhatzki.

101 *Experiences with Talma Operation.—Klinitcheski materiali po operatzii prishivaniya bolshogo salnika k perednoi briushnoi styenkye. I. I. Kozkovski.

102 *Retinal Hemorrhages in Parasitic Pernicious Anemia.—O krovoizliyaniyakh v setchatkye pri zlokatchenstvennom glistnom (sherokii lentetz) malakrovii. A. S. Tchemolosoff.

103 Action of Electricity on Microbes.—Isslyedovaniya nad dyestviem electritchestva na mikrobov. S. M. Burak. (Concluded.)

104 (No. 49.) Taste and the Needs of the Organism.—Vkus i potrebn[illegible]

105 Cicatricia[illegible] zovikh [illegible] ie reb[illegible] ne casa. [illegible] pribor

106 Apparatus for Measuring Sp[illegible] gorbov. N. P. Gun (St. Petersburg).

107 [illegible] in Treatment of Puerperal Fever and [illegible] Unguentum Credé pri gnilostnikh zabolyevaniyakh v poslyerodovom periodye i o poslyerodovoi skarlatinye. G. L. Davidoff.

108 To Detect Simulated Deafness.—Novii sposob raspoznavaniya pritvornoi glukhoti. A. A. Govsyeff.

109 Third Tonsil in Infants.—3-ii mindalik v grudnom vozrastye. I. M. Potanoff.

110 *Action of Radium on Typhoid Serum.—O vliyanii radii na agglutiniryiushtchyiu sposobnost sivorotki krovi briushnotyphoznikh bolnikh. P. P. Yagn.

101. **Experiences with Talma Operation.**—Kozlovski gives the particulars of 5 cases of ascites from cirrhosis of the liver, treated by omentopexy. Two patients were apparently much improved but their ultimate fate is not known. Two others were much improved and lived five and eleven months. In one the ascites recurred after a few months. One patient died in less than a month. The particulars of seven similar operations by other Russian surgeons are also given.

102. **Retinal Hemorrhages in Parasitic Anemia.**—Tchemolosoff adds two cases to his first series of four with anemia and retinal hemorrhages due to the presence of the *Ankylostomum duodenale*. All the cases terminated fatally, notwithstanding prompt differentiation and treatment. The eye of one of these patients was submitted to minute microscopic examination, the results of which are given in detail.

110. **Action of Radium on Typhoid Serum.**—Yagn made 19 tests of the serum of typhoid patients, exposing it to the action of the radium rays. He found that long exposure completely checked agglutination. Exposures less than two or three days in length inhibited, but did not completely arrest the agglutinating property.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A COMPEND OF THE DISEASES OF THE EYE AND REFRACTION, Including Treatment and Surgery. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia. Third Edition, Revised and Corrected. 109 Illustrations, Several of Which Are in Colors. Cloth. Pp. 295. Price $1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

A DIRECTORY OF INSTITUTIONS AND SOCIETIES DEALING WITH TUBERCULOSIS IN THE UNITED STATES AND CANADA. Compiled by Lilian Brandt. Cloth. Pp. 270. Published by the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York and the National Association for the Study and Prevention of Tuberculosis. 1904.

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas City Medical College. With 559 Illustrations, a Number of Which Are Printed in Colors. Cloth. Pp. 644. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ZEITSCHRIFT FUER [illegible] CHIRURGIE Einschliesslich der Heilgymnastik und [illegible] Hoffa. XIII. Band. 4. Heft. Mit 74 in de[illegible]rbildungen. Paper. Pp 862. Stuttgart. Ve[illegible]nke. 1904.

THE DISEASES OF SOCIETY (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-urinary Surgery, State University of Illinois. Cloth. Pp. 624. Price, $3.00 net. Philadelphia: J. B. Lippincott Co. 1904.

THE SIXTH ANNUAL REPORT OF THE INDIANA STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION for the Year Ending Dec. 31, 1903. To the Governor. Cloth. Pp. 272. Indianapolis: Wm. B. Burford. 1904.

THIRTEENTH REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF MAINE for the Two Years Ending Dec. 31, 1903. 1902-1903. Paper. Pp. 270. Augusta, Maine: Kennebec Journal Print. 1904.

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION FOR THE YEARS 1903-1904. Paper. Pp. 128. Published by the Association. Aberdeen, S. D.: News Printing Co. 1904.

FIRST BIENNIAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS OF THE STATE OF SOUTH DAKOTA. March 27, 1904, to the Present Time. Aberdeen: News Printing Co. 1904.

NEW CLINICAL REPORTS. RESULTS OBTAINED BY THE USE OF GARDNER'S PERFECTED PHARMACEUTICAL PRODUCTS. New York 1904. Cloth. Pp. 108.

EIGHTH BIENNIAL REPORT OF THE DELAWARE STATE HOSPITAL AT FARNHURST, December, 1904. Paper. Pp. 94. Wilmington: Sunday Star Print.

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Original Articles.

CONSERVATIVE PERINEAL PROSTATECTOMY.

A REPORT OF FIFTY CASES.*

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BALTIMORE.

One year ago I presented to the American Association of Genitourinary Surgeons a paper entitled "Conservative Perineal Prostatectomy—A Presentation of New Instruments and Technic."[1] Since then I have further elaborated the technic, and it is my purpose to-day to outline the results obtained in 50 cases in which I have employed this method.

In using the word conservative, I do not wish it to be understood as opposing radical surgery for the prostate, but simply as an advocate of the conservation of those structures which are in no way concerned in the obstruction to free micturition, and are of themselves of independent importance, viz., the preservation of the urethra and of the ejaculatory ducts. By means of the 50 cases which I report I hope to make it clear that both of these structures need not be uselessly sacrificed or injured and that their preservation in no way detracts from a perfect functional result, so far as the restoration of normal urination is concerned, but also that the virility of the sexual powers will be generally left unimpaired.

I hope I will be pardoned for outlining here briefly the principal features of the technic already described. The form of perineal incision is of no particular consequence but, as the operation which I employ is carried out between the bulb of the urethra and the anterior surface of the rectum, I have usually made my cutaneous incision so as to give the best exposure to this region—an inverted V, with the apex over the posterior part of the bulb and the branches extending to a point between the anus and the ischial spine on each side (Fig. 1). This incision, although only carried through the skin and superficial fascia, allows the rectum to be retracted backward with ease, giving a splendid exposure. The only muscular structures divided are the central tendon of the perineum (Fig. 2) and the rectourethralis muscle which lies immediately beneath it (Fig. 3) and covers the membranous urethra and apex of the prostate. This small muscle, as Proust has shown, is the key to the situation, because it draws the rectum forward nearly up to the triangular ligament, where it is in great danger of being injured, if the rectourethralis is not carefully divided before going deeper, and because it also covers the entrance to the retroprostatic space which forms the field of work. The membranous urethra having been exposed, a small longitudinal incision is made on the grooved staff in the urethra (Fig. 4), the edges are carefully caught with forceps, an ordinary sound is passed through into the bladder to enlarge the canal, after which the prostatic tractor (Fig. 5) is inserted and opened out (Fig. 6).

When traction is made, the posterior surface of the prostate emerges at once from its hidden site in the depths of the wound, and the operator is free to carry out any maneuvers which he may desire (Fig. 7).

After having previously performed many suprapubic and perineal operations in the dark, depending entirely on the sense of touch, and glad enough to remove almost any portion of the prostate that I could get hold of, regardless of the urethra, etc., it occurred to me in the third perineal case with this tractor that it was a pity to sacrifice undoubtedly valuable structures, portions of the urethra and ejaculatory ducts, when the prostate could be so drawn down that it lay almost in the surface of the wound ripe for any nicer procedure which one might wish to execute.

I determined, by study of anatomic and pathologic specimens of the prostate, that two divergent incisions (Fig. 7) could be so made through the posterior surface of the prostate as to preserve between them the ejaculatory ducts and the floor of the urethra, without retaining any obstructive tissue (Figs. 8 and 9), and that if a median bar or lobe were present, it could be easily drawn by the tractor so as to project into one of the lateral cavities, and there be enucleated from its side, without disturbing the ejaculatory ducts, or even the urethra (Fig. 10).

That this assertion, which I offered at first with considerable hesitation, is undoubtedly true, I can now, on an experience of many middle lobe cases, affirm with great positiveness—and this without leaving behind any portion of hypertrophied tissue sufficient to produce obstruction of free urination. It has also, contrary to my expectation, proved applicable to all forms of median lobe enlargement, including even enormous intravesical outgrowths (one of which was as large as an orange and weighed 240 grams.) I am free to admit that in some of these cases the median enucleation might have been done more quickly from a suprapubic wound, but the middle lobe was always often associated with lateral enlargements which would have been more difficult to remove by that route, and the prospect of a much shorter convalescence and less operative risk, put me on my mettle to accomplish the more ideal, though more difficult, feat. Another reason has been that I have always been able by spinal cocainization to get excellent anesthesia of the perineum and prostate, whereas I have failed to get like good results for the suprapubic route.

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* Read in the Section on Surgery of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904. The discussion on the symposium on prostatectomy, of which this article was a part, appeared in THE JOURNAL, Nov. 12, 1904, page 1452.

[1] Published in THE JOURNAL A. M. A., Oct. 26, 1903.

THE USE OF THE INDEX FINGER AS A TRACTOR.

There are some cases, however, in which the median enlargement is in the shape of a small bar or lobe, so adherent that it is difficult to engage it with the blade of the tractor, as described in my first paper, and for these I have of late employed the index finger of the left hand in place of the tractor in the urethra, to push the lobe into the lateral cavity. After the tractor has been withdrawn the finger is inserted gently through the opening, down the prostatic urethra, until the end is free in the bladder. Examination will then reveal the median bar or lobe which remains, and it is an easy matter, by crooking the finger over it, to carry it into the left lateral cavity where it can be enucleated (Fig. 11). If an adherent bar is encountered a fairly sharp periosteal elevator is a good instrument with which to peel it out. Occasionally it may be necessary to use scissors for this purpose, and to get hold of the mass to be removed as it begins to be separated, some long forceps may be required.

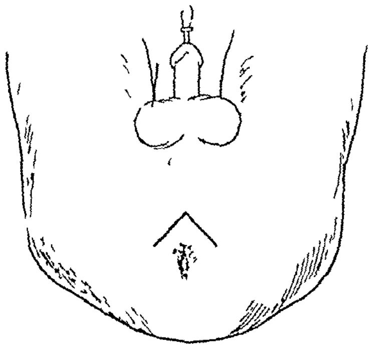

Fig. 1.—The inverted V incision

A very small rounded or pedunculated median lobe has been, in several of my cases, impossible to engage with the blade of the tractor, but I have been able, by using the finger instead of the tractor, to successfully remove it without injuring the urethra or the ejaculatory ducts. The technic described above is entirely different from that of Albarran, who draws the median lobe into the widely opened urethra with the finger, the portion of the prostate containing the ejaculatory ducts being destroyed, as he admits. He even goes so far as to ligate the vasa-deferentia in the groin after perineal prostatectomy has been completed, on the ground that the ejaculatory ducts have already been destroyed, and vasectomy will prevent epididymitis, which occurred in a large percentage of his cases.

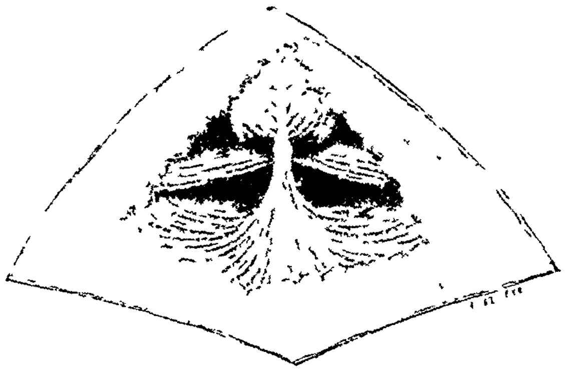

Fig. 2.—Central tendon of perineum exposed by blunt dissection

The following case illustrates the value of the modification of technic described above:

No. 493.—J. T. M., 54 years. Admitted Oct. 23, 1903.

History.—Frequency of urination beginning 15 years ago; considerable difficulty in voiding urine for past 10 years. One year ago he urinated every hour night and day—after that incontinence. He has been using a catheter for a short time.

Examination.—Prostate small and hard. Cystoscope showed small median lobe and slight lateral enlargements. The urine was acid and purulent. Residual urine, 500 c.c.

Operation.—Ether anesthesia. Enucleation of lateral lobe, which proved very small, a median bar and a pedunculated middle lobe the size of a pea. Urethra, bladder and ducts were left intact. Lateral lobes and median bar were easily removed with the assistance of the tractor in the bladder. The pedunculated median lobe was so small that it could not be engaged with the blade of the tractor, but after this instrument had been removed the index finger was introduced, as shown in Figure 11, when it was easily shelled out, although only about 8 mm. in diameter (Fig. 12). Total weight of prostate was less than 15 gm. Median lobe, about 2 gm. Double drainage No shock.

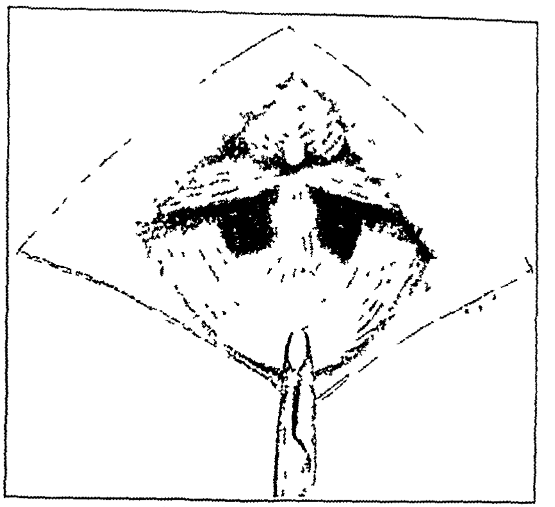

Fig. 3—Central tendon divided, exposing rectourethralis muscle

Result.—Convalescence was rapid. The patient left for home in third week. Interval between urinations was then 4 hours; residual urine 40 c.c., erections had returned. Perineal wound closed in the fourth week.

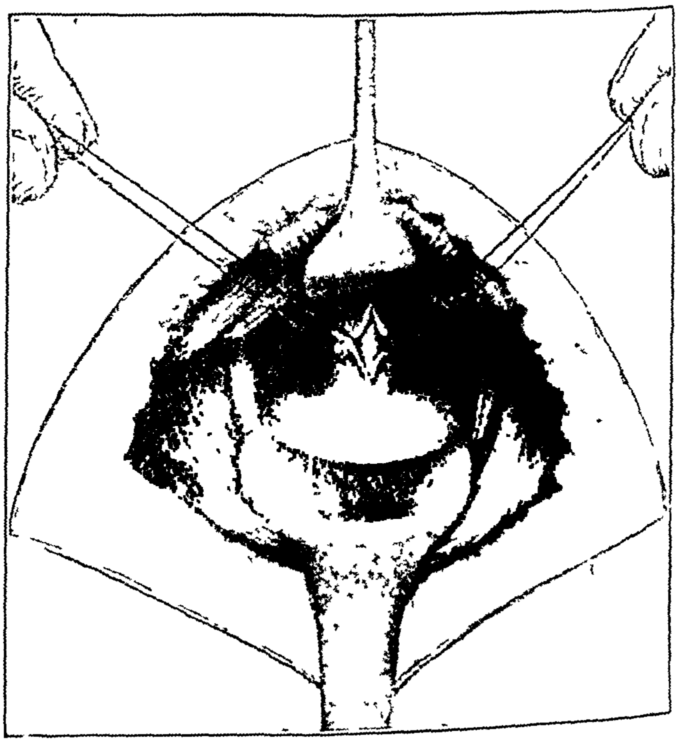

Fig. 4—Incision of membranous urethra for introduction of tractor.

Report several months later: Urination free, about 500 c.c at a time, at intervals of three hours. No residual urine, no incontinence. *Erections, coitus and ejaculations normal*

A very pedunculated middle lobe may evade both the finger and the tractor, and in such instances it may be best to insert a curved clamp and draw the middle lobe down the dilated urethra where it may be enucleated or divided with scissors. This is the technic employed by Albarran.

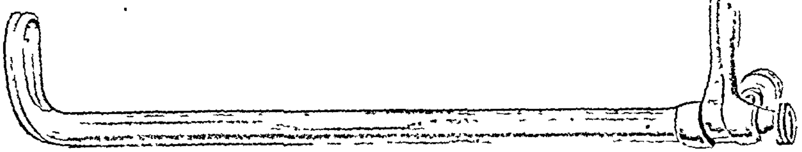

FIG. 5.—Prostatic tractor closed for insertion.

A SUBURETHRAL METHOD OF REMOVING A MEDIAN BAR OR LOBE.

In case the patient has already lost his sexual powers the reason for preserving the ejaculatory ducts does not hold, and in such cases, when the median bar or lobe is too small or too adherent to be delivered into a lateral cavity with the tractor, I have removed the mass suburethrally, after transverse division of the ejaculatory bridge as shown in Figure 13.

After stripping back the capsule (Fig. 14), it is an easy matter to shell out or to excise the median bar or lobe without opening the urethral or vesical mucous membrane covering it, as shown by the following case:

No. 528.—R. M. W., 78 years of age. Admitted Jan. 9, 1904.

History.—Onset occurred 18 years ago, with gradual increase in difficulty of urination. In 1901, he often voided urine 30 times during a night; he used a catheter only occasionally. In April, 1901, double castration was performed by another surgeon with only slight benefit. He now voids urine very frequently, at times, every hour.

Examination.—Condition was good for his age. Arteriosclerosis slight. Urine was acid and moderately purulent. Prostate was considerably enlarged. Catheter was difficult to pass—urethral distance eleven inches. The cystoscope showed a median bar, a fairly large left, and a similar right lobe.

Operation.—Spinal anesthesia by cocain, gr. 1/3. Enucleation of large lateral lobes and small median bar, as shown in photograph (Fig. 15). The "ejaculatory bridge" was purposely cut to remove the bar, which was enucleated as described above. Urethral and vesical mucosa covering the bar was not torn. The lobes weighed 74 gm.; the median, 7 gm The patient was up in a wheel-chair on the third day, tubes out on the fourth day.

Report: Five months later, he does not have to use a catheter—can empty bladder. Fistula closed. No incontinence. No residual urine, but cystitis and some vesical contracture are present. Micturition about every two hours. The patient had no after-treatment, and the frequency of urination could be relieved by dilatation of the bladder by hydraulic pressure.

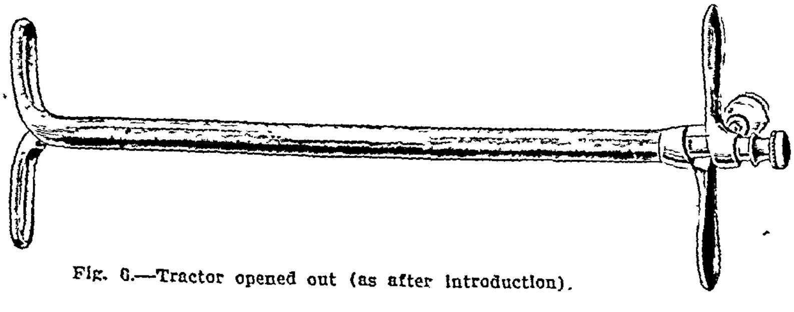

FIG. 6.—Tractor opened out (as after introduction).

TREATMENT OF VESICAL CALCULUS AS A COMPLICATION OF ENLARGED PROSTATE.

In the great majority of cases the median mass can be enucleated through the lateral cavity—the larger the lobe, the easier it is.

In my first 100 cases of prostatic hypertrophy, calculus was present in about 30 per cent., and, although the proportion has not been so great in these 50 cases of perineal prostatectomy it has occurred frequently enough to be an important factor in the operation. Either litholapaxy, before or during the prostatectomy operation, or suprapubic or perineal lithotomy may be performed. Without going into the arguments for or against either of these procedures, it is evident that if a perineal prostatectomy is to be performed the ideal procedure is to remove the calculus at the same sitting, without crushing it, for litholapaxy is in these cases a tedious procedure. If, however, the removal of the calculus intact will seriously injure the urethra, the ejaculatory ducts or the neck of the bladder, such a method is contraindicated. To drag a calculus by main force out through the urethra, as it is left by the technic which I follow, would be at once dangerous and destructive, except when it is small.

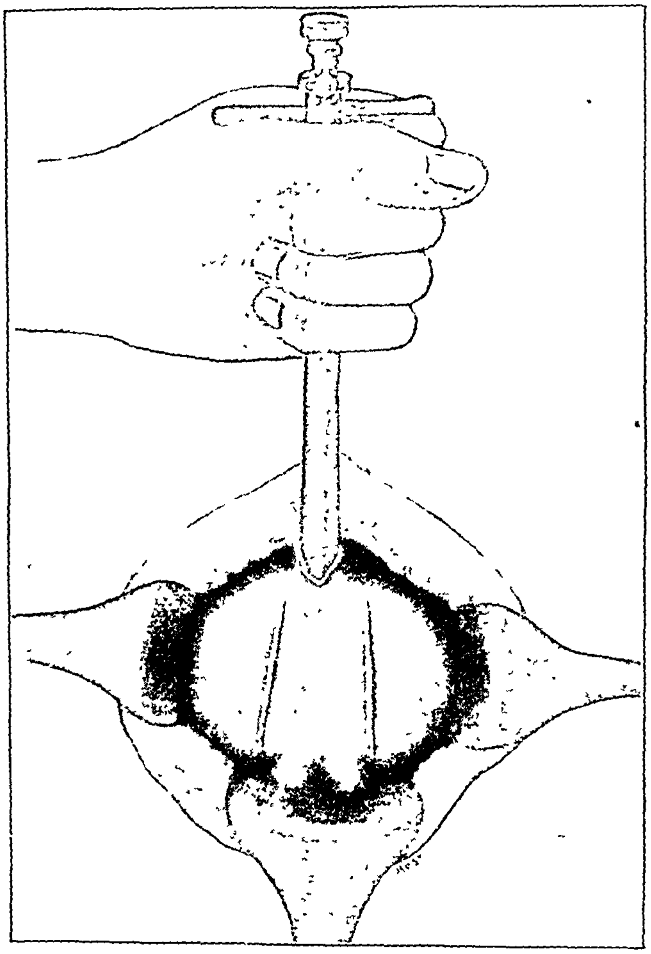

FIG. 7.—The prostate drawn down by tractor.

I have therefore endeavored to devise a method which would be free from the dangers mentioned above, and which would also provide for the removal of moderately large stones. The technic which I have found most satisfactory is graphically shown in the accompanying drawing (Fig. 16).

As seen here, the urethra is split with scissors along its left lateral wall, from the urethrotomy wound in the membranous urethra up to its vesical orifice. By this procedure, the urethra becomes a common cavity with that left by the enucleation of the left lateral lobe, and abundant room is furnished for the extraction of calculi. If the cystoscope has shown the calculus to be only a moderately large one, it is usually only necessary to dilate the vesical orifice with a uterine dilator in order to extract it with the forceps. If the calculus is too large to be thus withdrawn, a probe-pointed bistoury may be inserted, and the orifice enlarged by a cut through the vesical mucous membrane covering the left lateral cavity of the prostate.

I have followed the technic described above in five cases; in three cases removing one calculus, in one, two, and in another seven, with success in all. The ejaculatory bridge containing the ducts was not injured, no urethral nor vesical mucous membrane removed, and the perineal wound healed just as rapidly as after the simple prostatectomy; in one case, perineal leakage ceased after the ninth day. I have not found it necessary to close the divided urethra with sutures, but have simply provided the double urethral catheter drainage through the urethrotomy wound and the gauze packing for the lateral cavities as usual. The great advantage of perineal over suprapubic lithotomy is that the patient can be propped up in bed at once, and moved into a wheeled chair on the third or fourth day. The secret of success in these cases, is to flush the kidneys and to get the patients out of bed quickly, and this can not be done after the suprapubic operation with the same impunity and rapidity as in the perineal cases. In some cases *sectio alta* may be necessary, though an attempt to crush the stone through the perineal wound may be a decided one.

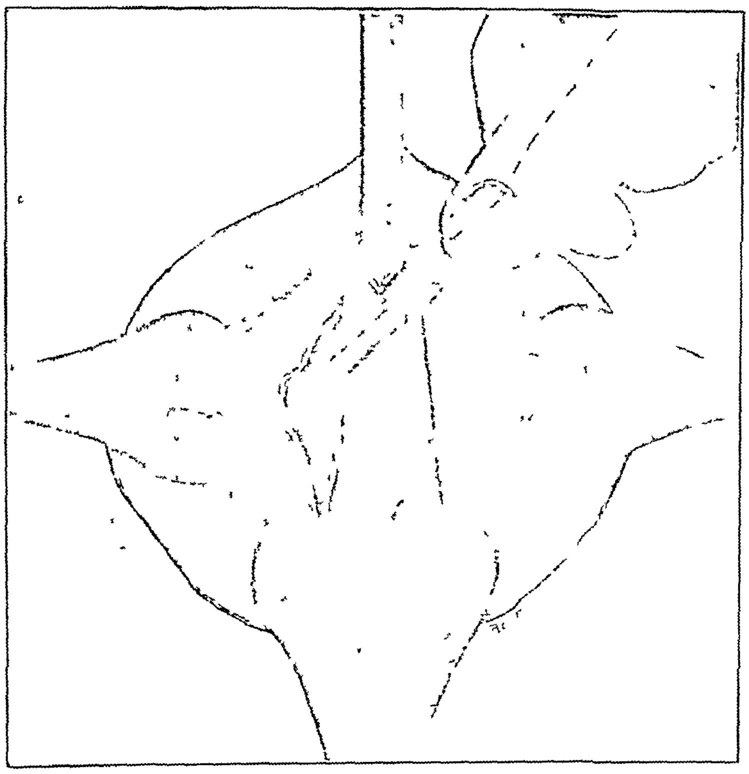

Fig. 8 — Stripping back the capsule with blunt dissector.

The following case shows that a very large calculus may be removed through a lateral cavity by the technic described above:

Patient.—S., male, aged 65.

Examination.—On cystoscopic examination a moderately enlarged prostate was found, complicated by a very large, rough vesical calculus.

Operation.—Perineal prostatectomy was performed by the usual technic, the urethra and "ejaculatory bridge" preserved and the moderately hypertrophied right, left and median lobes enucleated. The left lateral wall of the urethra was then divided longitudinally up to the vesical orifice, with scissors (Fig. 16). Large stone forceps were inserted into the bladder, and a calculus of great size caught. On withdrawing the forceps the calculus was found to be too large to pass through the dilated vesical orifice, but by making traction the vesical mucosa in front of the stone was drawn into the left lateral cavity, where it was divided with a scalpel, on the stone as a bobbin. After this, the calculus (Fig. 17) was easily extracted The divided vesical neck was then approximated with two catgut sutures, and the lateral wall of the urethra easily closed

Result.—The patient made an excellent recovery. The urine ceased coming through the perineum on the sixteenth day, no incontinence of urine followed; and normal micturition was established.

The stone, which is apparently oxalate of lime, has a very rough surface, and measures 4.5x3.5x3.5 cm.

PRELIMINARY TREATMENT.

This is of very great importance for successful results in these very delicate patients, and it is often wonderful how careful nursing will carry one over a crisis and get him finally into condition for operation, as shown by the following case:

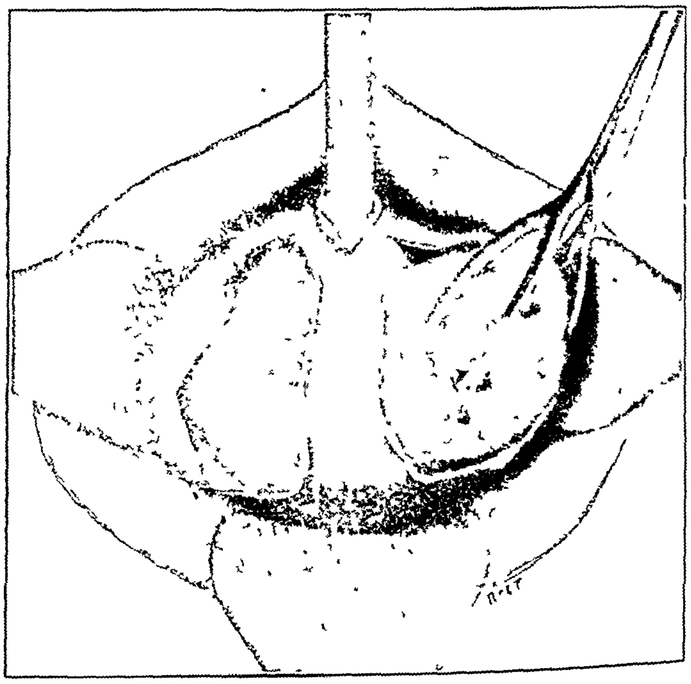

Fig. 9.—The enucleation of lateral lobes.

No. 576—D. C, aged 72, was admitted April 22, 1904, in a desperate condition.

History.—For five months he had been compelled to urinate every half hour, and ten days previously complete retention developed, but his physician was unable to catheterize him for 24 hours, when he found 1,500 c.c. of urine present. In a few days he had fever, nausea and a severe pain in left kidney. On entrance to the hospital he was emaciated, had fever, and showed evidences of uremia. His bladder was greatly distended and the left kidney was enlarged and *tender*. After two or three days be became desperately uremic.

Preliminary Treatment.—A rubber catheter was fastened in the urethra, and he was given submammary infusions and salt solution by rectum. Forced liquid diet was given for several days.

Result.—Under this treatment he gradually became rational, uremia disappeared, and finally, after six weeks of "internal hydrotherapy," perineal prostatectomy was performed under spinal anesthesia, cocain, gr. 1/3, being used. He was very little shocked by the operation, and made a satisfactory recovery. The fistula closed in 5 weeks, and examination six weeks after operation showed 20 c.c residual urine, urination free, bladder contracted by long drainage. and holding only 150 c.c, for which he will be treated by hydraulic dilatation. His general condition is excellent, and one would not think that only a few weeks previously he had been so desperately ill.

CYSTOSCOPY.

Cystoscopy is, I think, of very great importance, for it tells us the size, character and disposition of the prostatic enlargements in the bladder and thus indicates what we must look for at operation and the best means of attack. If the cystoscopy shows that the lateral portions are alone enlarged, there being no median lobe nor even bar present, we know at once that after the lateral lobes have been enucleated, nothing further is necessary. When on the other hand a definite median lobe is shown by the cystoscope, we should not rest content until it has been removed by the usual technic or by the modifications described above. The cystoscope has also shown other conditions, such as calculi, and vesical tumors, when such were little to be expected from the symptoms. The important rôle played by diverticula of the bladder, and demonstrated by the cystoscope is shown by the following case:

Patient.—E. J. I., aged 60, had had complete retention of urine and used a catheter for several years. He saw a surgeon in another city, who passed a catheter, and told him that he was suffering from prostatic hypertrophy, for which vasectomy would be the appropriate treatment.

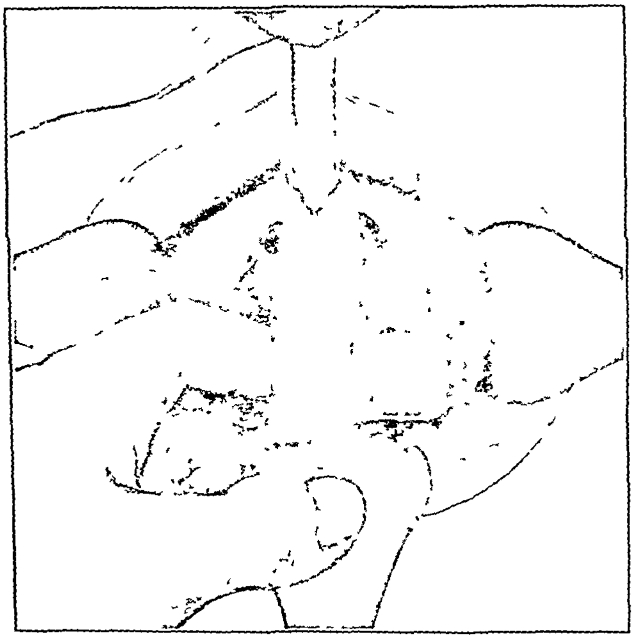

Fig 10.—Delivery of the middle lobe into left lateral cavity.

Examination.—On examination I found no prostatic enlargement, but the cystoscope showed that the obstruction to urination was due to two diverticula beneath the trigone, which was so elevated by them that it acted as an obstruction to the egress of urine through the prostatic orifice.

Treatment.—He was restored to voluntary urination by a suprapubic operation, in which the septa between the diverticula and bladder were divided and the cut edges sutured.

In another case, the cystoscope showed a small opening in the anterior wall of the bladder, which communicated with a very large diverticulum. The prostate was bilaterally enlarged, and 1,200 c.c. residual urine was present. Prostatectomy was performed, but as it seemed dangerous to leave the diverticulum I made a suprapubic incision, exposed the anterior wall of the bladder, found that the diverticulum had a neck like a gourd and extended backward beneath the peritoneum, and along the rectum, and contained about 500 c.c. of fluid. After division of its neck at the bladder wall the diverticular sac was easily extirpated, and the vesical opening closed like the stump of an appendix. The bladder was not opened in either procedure. There was no subsequent leakage and the patient is perfectly cured. Without the cystoscope, the diverticulum would not have been discovered, until at some late date when possibly occlusion of its orifice and perivesical abscess would have furnished an interesting autopsy. I might cite numerous instances showing the great importance of cystoscopy in every case before operation, where the condition permits. The cystoscopic views obtained of the different segments of the prostatic urethral margin I record in diagrams devised especially for this purpose as shown in Figure 18.[2]

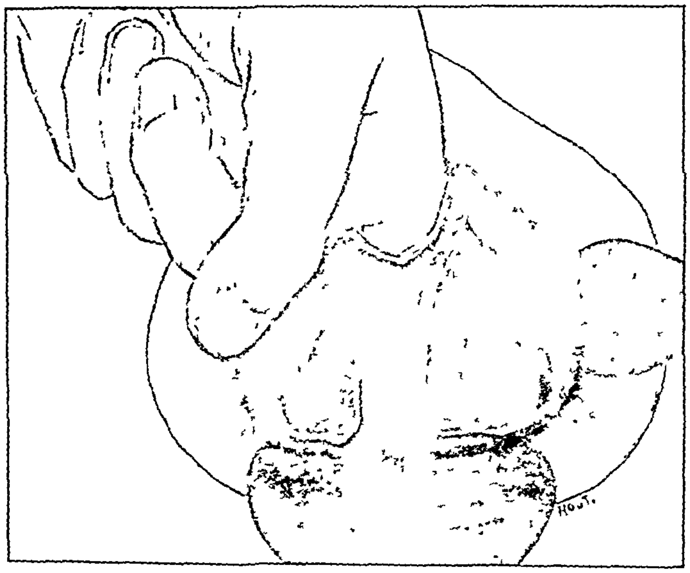

Fig 11.—The use of index finger to deliver a small median lobe into lateral cavity.

SPINAL ANESTHESIA.

The use of spinal cocainization has proved of very great value in those cases in which, on account of old age or renal disease, ether or chloroform would be dangerous. I now use one-third of a grain of dry sterile cocain, and allow it to dissolve in the spinal fluid which has been drawn into the barrel of a Luer all-glass syringe, which has been so successful in the hands of Goodfellow. In my cases, now numbering ten, there have been none of the unpleasant sequelæ which we used to have when an aqueous cocain solution was injected into the canal. In several instances there has been a very slight nausea and vomiting on the table, but this is all, and the anesthesia has been perfect. Two of my patients were over 80 years of age, and others were either very old or very weak. In one case, already mentioned when speaking of preliminary treatment, one kidney and possibly both were diseased, and the patient was very uremic. In several of these cases I would not have dared to give a general anesthetic, and I firmly believe that through the use of spinal anesthesia the radical removal of the prostate through the perineum has been made a very much safer procedure than it was when ether or chloroform was necessary, and that the Bottini operation has been robbed of the strongest argument in its favor, viz.: that it could be done under local cocain anesthesia. One-fourth of a grain, I believe, is sufficient to insure excellent results.

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[2] The Use of the Cystoscope in Prostatic Hypertrophy, Bulletin of the Johns Hopkins Hospital, November, 1904.

AFTER-TREATMENT.

This has been so fully described in my previous article that I have little to add. As stated above, my guiding rules are:

1. To keep the kidneys very active, by means of water by mouth (from two to four quarts a day), and, if necessary, by subcutaneous infusions, or rectal injections of normal salt solution.

2. To get the patient up as soon as possible (propped up the second day, out of bed the fourth day, and walking as soon as possible).

3. Early removal of the gauze and tube drains. The former had best be removed on the second day and the tubes on the third or fourth day. The earlier the tubes are removed, the earlier the perineal fistula will close. Continuous irrigation of the bladder is now rarely continued longer than two or three days, sometimes only one. Since using it, however, I have not been troubled by the tubes becoming blocked by blood clots, as often happened before.

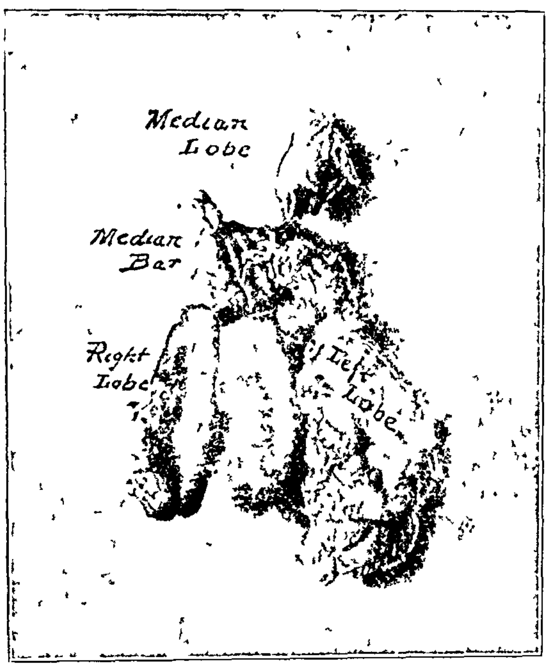

Fig 1.—Photograph, actual size Small pedunculated median lobe, small median bar. Two lateral lobes. Weight 15 gm.

4. Avoidance of instrumentation: The cases in which I used a retained urethral catheter, in the hope of facilitating the closure of the perineal fistula, have not proved the value of this procedure. In fact, in those cases in which the fistula closed in from 6 to 10 days, no catheter was inserted after the withdrawal of the perineal tubes. The wound is now allowed to close without additional packing after removal of the original gauze packs on the second or third day. I practically never pass sounds after operation. None of my 50 cases have shown any tendency to stricture formation, and a silver catheter will nearly always pass in without even detecting any roughness along the membranous urethra at the site of the urethrotomy. The use of the retained catheter, and dilatation by sounds are, I believe, the inciting causes of epididymitis. Cystitis and contracture of the bladder are the most important and common complaints with which we have to deal after the patient has been relieved of his prostatic obstruction. This is particularly true of patients who have suffered from severe interstitial cystitis or vesical calculus, or where the bladder has become contracted by a prolonged use of the retained catheter. In many of these cases the bladder may be distinctly enlarged by the patient voluntarily holding his urine as long as possible, and imbibing freely in water. It is often necessary to spend several weeks in forcibly distending the bladder by hydraulic pressure in order to restore that viscus to its normal size. In a paper on the subject[3] in 1898, I showed the simplicity and efficacy of this method, and in numerous cases recently I have demonstrated its necessity to obtain a functional cure; restoration to urination at normal intervals, after prostatectomy. The accompanying chart (Fig. 19), is the record of a case in which the largest amount of urine voided at a time was 60 c.c., the bladder on forced distention held only 80 c.c., and the interval between urination was one hour and ten minutes. The rapid improvement in vesical capacity, amount voided and the interval under "the hydraulic pressure treatment" is graphically shown in the chart.

RESULTS.

I have thus far (May, 1904) operated on 50 cases by this method. The ages of these patients were as follows:

Over 80 years	2	Between 60 and 65	13
Between 75 and 80	7	Between 55 and 60	6
Between 70 and 75	8	Between 50 and 55	2
Between 65 and 70	7	Under 50 years	5

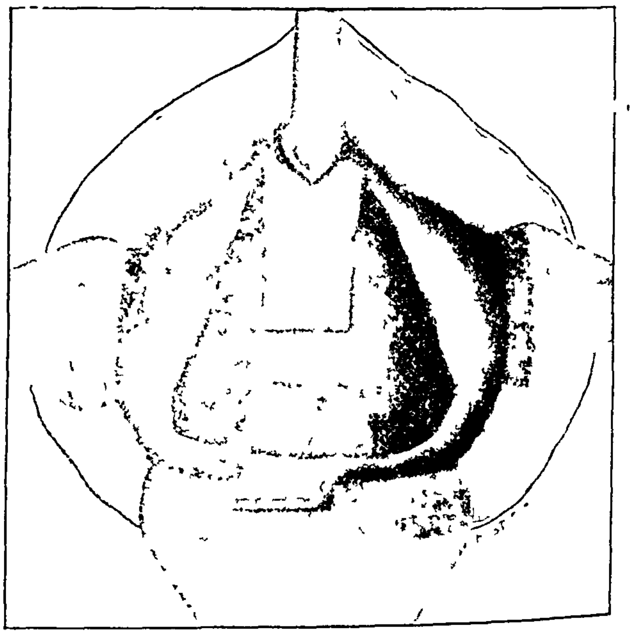

Fig. 13.—Division "ejaculatory bridge" suburethral enucleation of median bar.

MORTALITY.

There have been no deaths which, in my judgment, can be justly charged against the operation.

One man, aged 72, was in excellent condition two weeks after the operation, when, after an enema he died very suddenly and autopsy showed pulmonary embolism The second death occurred one month after the operation, in a patient aged 82 years, who did well for two weeks, but after that grew gradually weaker and died, apparently, as much from old age as from anything else The list of ages as given in the table shows at a glance the benignity of the operation, and the absence of operative deaths speak for its wider employment in severe cases.

In five cases a Bottini operation had been previously done (by me in three). One of these required prostatectomy on account of alarming hemorrhages from the intravesical prostatic enlargements. the other two, on account of difficulty of urination, due to persistence of prostatic obstruction. One case had incontinence of urine, which was not relieved by prostatectomy. The fifth case had been operated on by another surgeon without result, and was cured by prostatectomy.

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[3] Bulletin of the Johns Hopkins Hospital, May, 1898

RELIEF OF OBSTRUCTION.

Eighteen cases had complete retention of urine and led catheter lives. Thirteen used the catheter, but were able to void some urine naturally; the frequency of using the catheter varied greatly. In 14 cases the patient did not use a catheter, although, in one case, the residual urine was 1,200 c.c. In 5 cases the urine escaped through suprapubic fistulæ. I have heard from all of these cases. None of them is using a catheter. The suprapubic fistulæ are all healed, and voluntary urination is present in all cases and but two or three complain that the stream is smaller than normal.

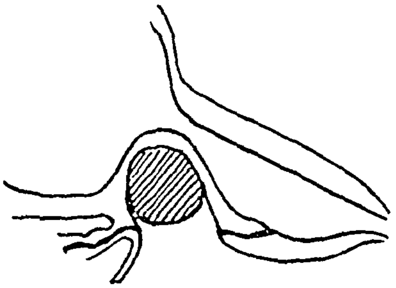

Fig 14.—Schematic longitudinal section of the urethra, showing the median enlargement enucleated beneath the urethra.

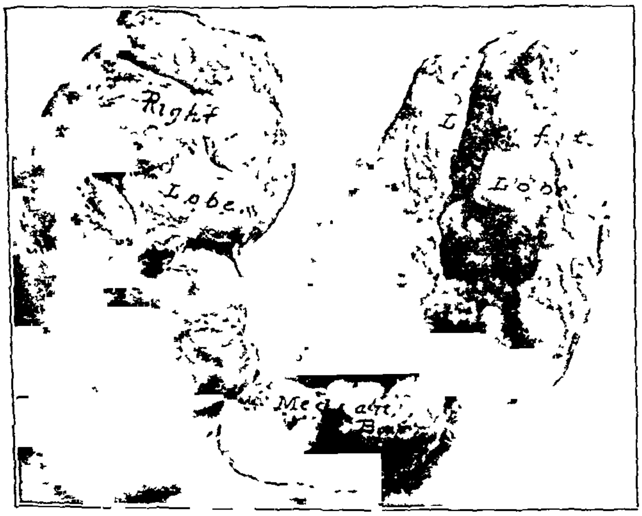

Fig 15.—Photograph of large lateral lobes and median bar removed by suburethral method

RESIDUAL URINE.

I know of no case that has more than 35 c.c. of residual urine. I have been able to examine about one-half of the cases and have found only once as much as that present, and in the majority there is no residuum. Those whom I have not seen have written me that they have every reason to believe that they can empty the bladder.

CAPACITY OF THE BLADDER.

The capacity of the bladder has much to do with the functional result.

In 10 of my cases the bladder was more or less markedly contracted before operation. In 3 cases calculi were present; the bladder held 50, 65 and 100 c.c., respectively; the first two were voiding urine very frequently and the third used the catheter every hour. After operation, all suffered from frequent urination. One remained for treatment and in one month his bladder capacity had been increased from 160 to 310 c.c., and the interval from one hour to three hours; residual urine, 8 c.c. One of the other cases, not treated, is able to void urine well and to empty his bladder, but the capacity is so small that he is compelled to urinate every half hour.

A very instructive case was that of a patient who came to the hospital very uremic, with a greatly distended bladder and pyonephrosis. Under continual catheterization, infusions and liquids he finally became strong enough for operation, but his bladder had contracted until it held only 30 c.c. Five weeks after operation he voided urine in a large stream, and there was only 20 c.c. of residual urine present. The bladder, however, will not hold over 150 c.c. on forced distension, and the patient has to void urine every hour and a half.

Another case had a vesical capacity of only 210 c.c. after operation but in four weeks the bladder was enlarged by twice daily forcible hydraulic dilatations up to 460 c.c., and 19 months after operation he voided urine every six to eight hours.

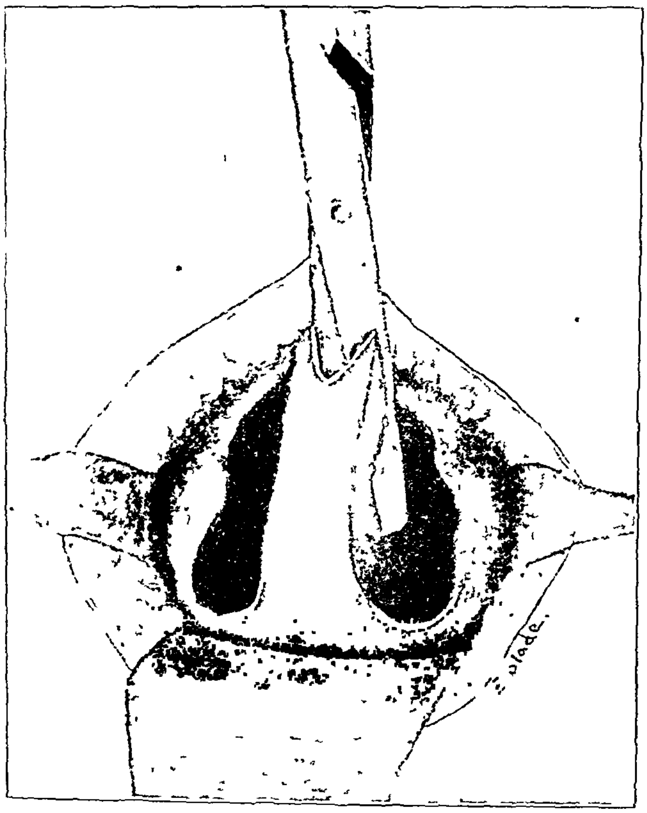

Fig. 16.—Division of lateral wall of urethra to allow extraction of large calculus through left lateral cavity.

I am convinced that several of my patients who now report frequency of urination could be restored to a normal interval by the dilatation treatment. This generally should not be begun until 5 or 6 weeks after the operation, when the fistula is firmly closed. Considerable pressure must be used, and it is necessary for the patient to endure a good deal of pain in order to accomplish results.

PRESERVATION OF SEXUAL POWERS.

I have tried hard to find out the exact status of the patients' *puissance* before and since the operation. This is a delicate question always, and one about which personal testimony is very likely to be slightly untrust-

INTRANASAL TREATMENT.

If we are not going to operate on our patient we must endeavor to maintain free drainage in the nose and not permit him to pass altogether from our observation. There is no doubt that in some cases the more aggravated symptoms are relieved and the state of the patient becomes more satisfactory when the intranasal condition is carefully attended to. If nasal polypi are thoroughly removed along with the anterior end of the middle turbinated bone, and the anterior ethmoidal cells opened into, better drainage may be established and the outflow of secretion rendered more easy. We have probably all seen cases in which the carrying out of this procedure has made the patient's condition more comfortable. In what proportion of cases a cure, as has been alleged, may result from intranasal treatment of this kind, is a matter which might form an interesting point for discussion. I am of the opinion that the number of such cases must be very small because both the anatomic configuration of the sinus and the pathologic changes which occur in its lining membrane in chronic suppuration militate against the chance of a cure merely from better drainage. It is necessary to bear in mind that the intranasal treatment outlined above should be carried out as a preliminary to an external operation on the sinus. Hajek,[6] however, takes a more favorable view of intranasal treatment; out of twenty-seven cases of chronic suppuration treated by intranasal methods, nine were completely cured; in eleven a mucopurulent secretion remained, while in seven no improvement was effected. In all of them, with three exceptions, the headaches disappeared. There were thus nine cases healed, while in eighteen the discharge continued. If, however, freer drainage from the sinus can be established in this way, it is possible that the risk of serious intracranial complications arising may be lessened.

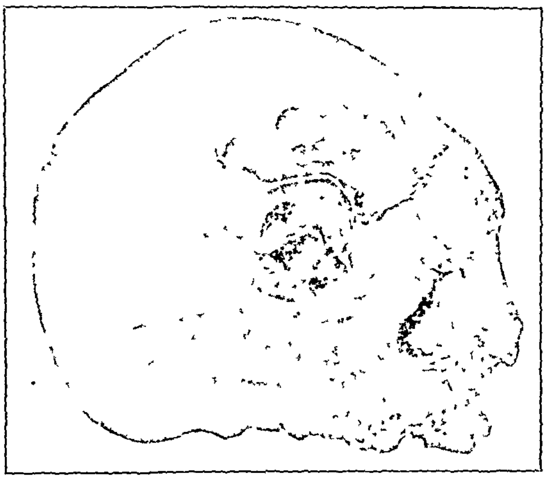

Fig. 3.—A large anterior ethmoidal cell is seen invading the orbital plate of the frontal bone and lying below the frontal sinus.

OPERATIVE PROCEDURES.

Having decided on operation, what procedure are we to adopt? Notwithstanding the numerous operations and their various modifications that have been described, many of which are associated with the names of different surgeons, there are only two main principles involved. First, the sinus is opened and drained into the nose, but its cavity is preserved; or secondly, the sinus is obliterated by the removal of one or more of its bony walls, so that there is no longer a cavity to deal with. If the first principle is adopted whatever be the precise mode of procedure, we still have a sinus remaining, which may subsequently become the seat of fresh infection. Little or no disfigurement follows this method of operating. If, however, we carry out the second principle and obliterate the sinus, we remove all possibility of further suppuration in this locality. At the same time by doing this we encounter a drawback, viz., a varying amount of disfigurement, which in this region of the body is one of no small moment and which sometimes, indeed, assumes very considerable proportions. The questions, therefore, which have to be considered are, what cases, if any, are suitable for treatment by preserving the sinus, and secondly, how may we best obliterate the cavity and at the same time produce the minimum of disfigurement. Again, can any method be adopted by which we may combine all the advantages associated with each of these procedures and at the same time eliminate their defects? These are the main points to which I would ask your consideration in this paper.

PRESERVATION OF THE SINUS.

The Ogston-Luc Operation.—It is quite unnecessary to present you with a detailed description of the operation so widely known under this title. Suffice it to say that it consists in opening the frontal sinus through its anterior wall, the size of the opening being relative to the dimensions of the cavity, in careful curetting of its interior and in establishing a large communication between the sinus and the nose, at the same time destroying the anterior ethmoidal cells in the region of the nasofrontal duct. Drainage into the nose is insured by the introduction of a strip of gauze through the nasofrontal aperture and the operation is completed by immediate suture of the skin incision.

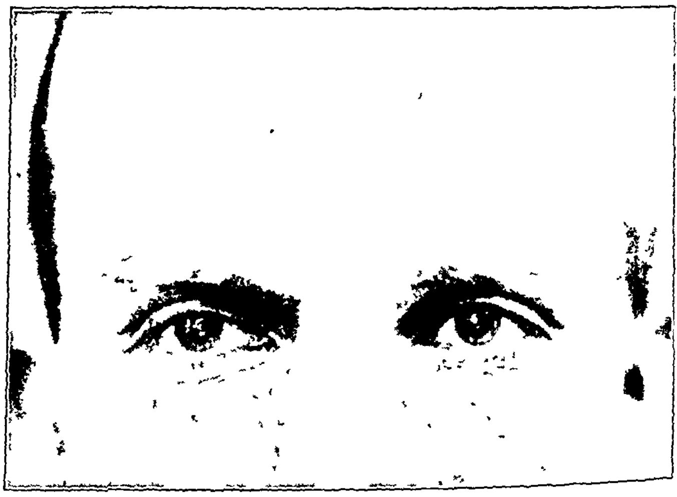

Fig. 4.—Patient, young man, after opening and draining left frontal sinus. (Ogston-Luc.)

Probably no operation, or a slight modification of it, has been more generally accepted and performed on the frontal sinus, yet more extended experience and a careful consideration of the results obtained from it go to show that the class of cases which is really suitable for this procedure appears to be a comparatively small one. This is due mainly to *anatomic* causes. If we consider the variations in the configuration of the frontal sinus, its variable extension vertically as well as outward toward the temporal region, and, not the least important, backward along the roof of the orbit, we can readily appreciate the difficulty of thoroughly inspecting the cavity through a somewhat limited opening in its anterior wall. If we bear in mind, further, that the frontal sinus is not always a simple chamber, but, on account of the existence in many instances of incomplete bony septa and partitions in its interior giving rise to one or more diverticula or recesses, it is difficult, and sometimes even impossible, to deal effectively with the whole cavity in this operation. These recesses are commonly met with in the external angle of the sinus and frequently in its horizontal or orbital portion. Both these situations are from their anatomic position very difficult of access. In consequence of this, pus and diseased mucous membrane may be overlooked and foci are left to cause fresh infection of the surface which has been curetted. Recesses may also exist in the vicinity of the septum between the two sinuses, and the non-recognition of these may cause the operation to fail.

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[6] Nebenhöhlen der Nase, 2d ed., 03.

Figures 1 and 2 illustrate some of these points. Figure 1 is an example of a case in which a recess formed by a partition lying close to and parallel with the septum led to an unsuccessful result. The patient had been operated on by two surgeons by the Luc method, and I believe that on each occasion the narrow mesial recess was overlooked and proved to be the cause of subsequent reinfection of the whole sinus. It was not until the entire anterior wall was removed that its existence was determined. It was then found that in addition to this the cavity (right sinus) extended into the left supraorbital region This latter diverticulum had also doubtless been overlooked. Figure 2 represents another sinus which had been twice operated on without success by merely opening and draining the cavity. After removal of the whole anterior wall at a subsequent operation, a well-marked diverticulum was discovered in the external part of the horizontal portion of the cavity.

Fig. 5.—Patient, young man, after opening and draining left frontal sinus (Ogston Luc)

Another difficulty which may present itself and which, if not recognized, must obviously lead to the failure of the operation, is the existence of a communication between the two sinuses through the intervening septum. Such an intercommunication, although it may doubtless occur, is not a usual anatomic condition, and I have never observed the septum to be incomplete in the normal skull. As the result of a pathologic process, however, the communication is sometimes found in cases of chronic suppuration and the opposite sinus becomes infected through it. It may not be easy to recognize the existence of such a communication through the limited opening which is made in the Luc operation, consequently the opposite sinus continues to discharge its purulent contents into the cavity which one has attempted to render aseptic.

There is still another point which calls for attention, since it may prove a source of weakness in this method of operating, and that is the difficulty of gaining sufficient access to the anterior ethmoidal cells. In a proportion of cases one or more of these cells extends outward into the orbital roof beneath the floor of the frontal sinus. An example of this is seen in Figure 3. Under these circumstances considerable dissection not only of the anterior wall, but also of the floor of the sinus is necessary before these cells can be recognized. Suppuration in the ethmoidal cells may be concomitant of chronic suppuration in the frontal sinus. Consequently, in seeking to establish a free communication between the sinus and the nose, an attempt must be made to destroy or remove the diseased ethmoidal air spaces which may otherwise prove a source of reinfection. As we shall see later the importance of dealing with these, has led Killian to resect the ascending process of the superior maxilla and thus gain more ready access to them.

ASSOCIATION OF FRONTAL AND ETHMOIDAL SUPPURATION.

It will not be out of place at this stage to examine some of the published records bearing on the association of frontal and ethmoidal suppuration, and learn how frequently the two conditions coexist. When we come to study such figures as I have been able to obtain, relative to this point, we find that the experience of surgeons varies. Thus Jansen[7] in ten instances, Röpke[8] in thirty-seven, Killian[9] in sixteen and Luc[10] in four instances found the ethmoidal cells affected along with the frontal sinus. Walker Downie[11] in six cases has noted ethmoidal disease in five of them. On the other hand, Lermoyez[12] in thirty-six instances in which the frontal sinus was affected found only two with associated ethmoidal dis-

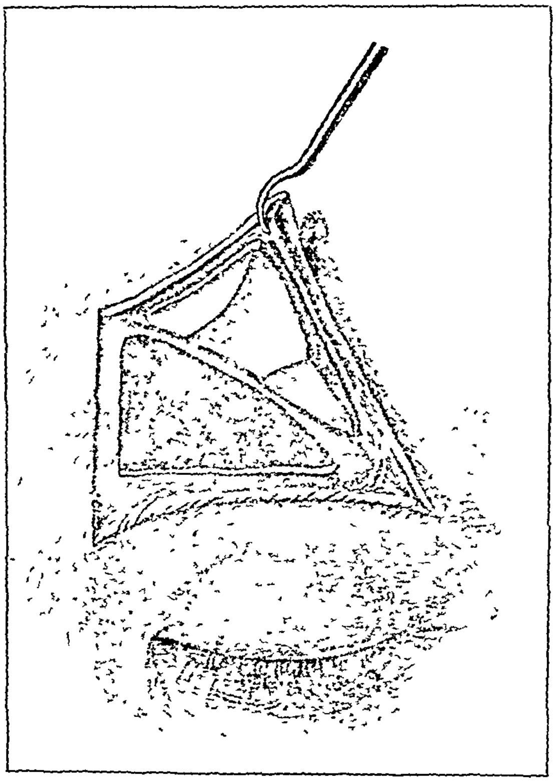

Fig 6.—Osteoplastic operation on frontal sinus Bone flap recommended by Hajek

ease; while Herbert Tilley[13] in twenty-five diseased frontal sinuses has noted six with ethmoidal suppuration. Milligan[14] has described in seventeen instances affection of the ethmoidal cells in nine, while of nineteen diseased frontal sinuses observed by myself the ethmoidal cells were also affected in eleven. In Wertheim's[15] postmortem observations the ethmoidal cells were found affected in seven out of twelve cases.

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[7] Arch. f Laryngol, Berlin, 1894

[8] Jour. of Laryngol., London, 1899.

[9] Arch f. Laryngol., vol xiii, No. 4, p. 1, 1902

[10] Ann des Mal de l'Oreille, December, 1902.

[11] Glasgow Medical Journal, March, 1899

[12] Ann des Mal de l'Oreille, November, 1902

We find on adding these figures together that in 172 instances in which chronic suppuration of the frontal sinus existed the ethmoidal cells were implicated in 107—i. e., 62 per cent. In other words, in 40 per cent. or less than half of the total number of cases of chronic frontal sinus suppuration, the ethmoidal cells were healthy, a larger proportion than perhaps is generally believed. It is difficult, however, to assign a cause for the great disproportion observed between the figures recorded by such observers as Jansen, Röpke, Killian and Luc on the one hand and those of Lermoyez and Tilley on the other.

RESULTS OF THE LUC OPERATION.

We have thus far indicated the anatomic features which may conduce to the non-success of the Ogston-Luc operation. It is necessary, however, to consider whether clinical observations justify us in regarding this operative procedure in an unfavorable light. In endeavoring to collect reliable statistics on this point a difficulty was at once met with, namely, information as to the exact method adopted by each operator. The kind of drainage employed and the treatment of the skin flap must be regarded as factors of considerable moment in the success or non-success of the operation. It is obviously unfair to adversely criticise a recognized operative procedure when in some not unimportant details the operation has differed from the lines laid down by the originator of it. For this reason the figures which follow are not large, as I have limited myself to those cases which undoubtedly appear to have been treated by the Ogston-Luc method. They may possibly be considered by some to afford a too limited basis for reliable deductions to be drawn from them. In all there are fifty-five cases. Of these seventeen are reported by Lermoyez[12] in the paper already referred to, nine of which were cured and eight relapsed. Lambert Lack,[16] who does not take a favorable view of this operation, treated eleven cases by this method, not one of which was completely successful. In four of them headache and pain were relieved, but the discharge, although much diminished, continued. In five no relief was obtained. Two cases terminated fatally. Luc himself has been disappointed with his results, having found it necessary to operate again more than once in some of his cases. An analysis of ten cases which came under my own care shows that six were completely successful. The cavity in all of these did not exceed ordinary dimensions, and in two of them it was of specially small size. In two there was also associated ethmoidal suppuration. Of the four unsuccessful cases, one had associated ethmoidal disease, while two others had been already operated on twice; neither of these had ethmoidal suppuration.

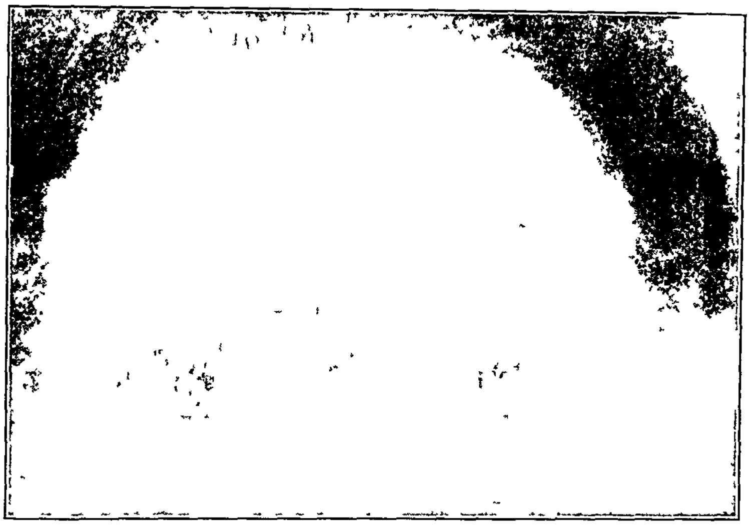

Fig. 7.—Patient, woman, two months after radical operation on large left frontal sinus (Killian method). A vertical incision was found necessary.

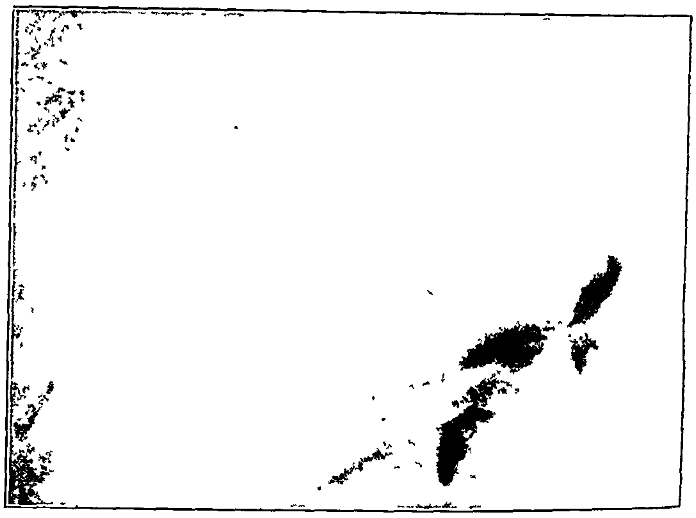

Fig. 8.—Profile view of patient, woman, three months after radical operation on large left frontal sinus. (Killian method.)

We find, however, that the operation has met with more success in some hands. Kuhnt[17] operated successfully in three cases, Grünwald[18] had six cases all successful, while Barbor and Furet[19] had no failures in eight cases. In summarizing these fifty-five cases we find that there are thirty-two cures and twenty-three failures, that is to say, a percentage of 58 successful operations. We shall see later how these results compare with the statistics of the obliteration method. Luc[10] himself now admits that the operation associated with his name has not given general satisfaction either in his own hands or in the hands of other operators. He considers it an ideal operation, however, only in certain cases, namely, when the dimensions of the sinus are limited, provided that the fronto-nasal canal is roomy, when the ethmoidal labyrinth is free from suppuration, and lastly, when the inflammation without being actually acute, has not persisted for more than a few months.

OPERATION FOR OBLITERATING THE SINUS. THE METHOD OF KUHNT.

Both anatomic and clinical evidence appear to be against the performance of an operation which does not permit of thorough inspection of the sinus and of the possibility of establishing a free communication with the nasal cavity by destroying the anterior ethmoidal cells should they also be diseased. In the majority of cases, therefore, we must seek for an alternative procedure by the carrying out of which the chances of failure and the risks of fatality are diminished. Experience goes to show that this is to be attained by obliterating the cavity of the sinus. In order to bring this about it is necessary to remove the whole of its anterior wall and also to a greater or less extent its floor. The removal of the floor is a valuable addition to the operation, I think, in those cases in which there is considerable extension of the sinus along the orbital roof. The removal of all the bone between the sinus and the soft tissues of the orbit is a guarantee that any ethmoidal cell extension into the roof of the orbit has been destroyed. Some operators, however, consider the removal of the osseous floor unnecessary. By this radical procedure we are able to thoroughly inspect the whole interior of the cavity, however large it may be, and no recesses can escape our observation. Further, the septum between the two cavities may be examined, and, as I have already said, the presence of ethmoidal cell extension into the orbital roof will thus not be overlooked. By this means also easier access is obtained to the ostium frontale and the diseased ethmoidal labyrinth may be more freely dealt with. Finally, we have the satisfaction of knowing that there is no longer a frontal sinus in which to fear recurrence of suppuration. In other words, therefore, if an operation of this kind, or some slight modification of it, such as the individual operator may think fit to apply, be performed, we eliminate all the defects and weaknesses of the less radical procedure.

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[13] The Lancet, London, July, 1900, and Trans. London Lar. Soc., March 4, 1904.

[14] The Lancet, London, February, 1898.

[15] Arch. f. Laryngol., vol. ii, No. 4, p. 2, Berlin, 1901.

[16] Edinburgh Med. Jour., vol. xi, 1902.

[17] Die entzündlichen Erkrankungen der Stirnhöhlen, 1895

[18] Die Naseneiterungen.

[19] Ann. des Malad. de l'Oreille, June, 1899.

If we now consider the curative results from the more radical methods, that is to say, in those cases in which the cavity of the sinus is obliterated, we find that the figures compare very favorably with those obtained after the Luc operation. My statistics are based on the results obtained in sixty-seven cases. Kuhnt has reported ten successes in ten cases operated on, and Röpke[8] was successful in all of his twenty-five cases. Lermoyez[12] had eleven cures in eleven cases of chronic fontal sinus suppuration; five of these had been operated on by the Ogston-Luc method, but had had recurrence of suppuration in the cavity. Lambert Lack[16] operated successfully in nine cases, and expresses the opinion that this method of dealing with the sinus is the most reliable. Hajek[6] obtained eight cures in nine cases, and Herbert Tilley[13] has recently published three cases, in all of which ethmoidal suppuration was present, and in which an excellent result was obtained. Of the sixty-seven cases here referred to a cure was effected in all but one, thus showing a very marked difference in the results as compared with the percentage of cures by the previous method. These figures are striking and though the total number of cases recorded here is not large, yet collectively they furnish sufficient evidence as to the respective merits of the two operations, so far, at any rate, as regards the cure of the condition. The question of comparative cosmetic results will be discussed later.

POSTOPERATIVE MORTALITY.

The comparison of the relative value of the two methods of operating is not complete, however, without consideration of the fatalities which have occurred after operative interference. Probably there are few surgeons, experienced in dealing with this class of cases, who have not had the misfortune either to lose a patient themselves, or to see a fatal result occur in the practice of one of their colleagues. A very considerable number of deaths have followed operation on the frontal sinus, and on that account we must necessarily regard it as one of the major operations in surgery. It is impossible to state with any degree of certainty how many fatalities have occurred, as there must be many cases which remain unrecorded. I have succeeded in collecting twenty-four, in which death followed operation on the frontal sinus. Of these sixteen have already been published, while I have information regarding eight others. Possibly others have been published, but I have not been able to obtain access to the literature dealing with them. The fatalities have been recorded by Luc,[20] Lermoyez,[12] Tilley,[21] Lack,[16] Rudloff,[22] Jaques,[23] Knapp,[24] Gibson,[25] Thiele,[26] Bryan and Gruening.[27] It is possible that in the cases reported by the two last mentioned observers the infection may have spread to the intracranial structures from the ethmoid cells, which were affected along with the frontal sinus.

The clinical picture presented by the majority of these cases is very similar. The infection which finally leads to the fatal result occurs, I think, at or within two or three days of the operation. The diploë of the frontal bone is invaded by the organisms and an osteomyelitis is in the first place set up. The infection spreads thence, on the one hand, through the outer table of the bone, giving rise to subperiosteal abscesses beneath the scalp; on the other hand it passes inward and may subsequently give rise to extradural or subdural abscess, general meningitis or cerebral abscess, the patient succumbing to one or more of these conditions, or to a general septicemia or pyemia after a varying number of weeks or months. Once an osteomyelitis of the frontal bone has become established, the prospect of cure by surgical interference is apparently hopeless. It commences insidiously and before the general symptoms and local signs are such as to permit of an exact diagnosis being arrived at the disease in the bone has made considerable progress. Even the most active treatment and apparently thorough removal of the bone in the neighborhood of the sinus fails to stem the slow but steady advance of the inflammatory process. In a case of this nature occurring under my own care no untoward symptoms supervened until the tenth day after the operation, when the temperature, which was previously normal, suddenly rose and some edema of the scalp was visible above the limits of the sinus. Subperiosteal and extradural abscesses formed and in spite of extensive removal of the frontal bone the patient finally died from pyemia after three months' illness. In Tilley's[13] case also symptoms developed ten days after the operation on the sinus and death took place after a protracted illness lasting for nine months.

An analysis of the fatal cases affords instructive reading when considered from the point of view of the nature of the operation performed. Of the twenty-four fatal cases there are twenty-three in which I have information regarding the operative procedure adopted. Of these seventeen, or 74 per cent., occurred after opening and draining the sinus (Ogston-Luc). Further analysis of this number brings out the fact that in fifteen death followed a single operation, while in two, more than one operation had been performed owing to the failure of the first to effect a cure of the suppurative condition. Of the remaining six of which we have notes all proved fatal after an operation for obliteration of the sinus, i. e., 26

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20. Arch. de Laryngol., Jour. of Laryngol., 1899.
21. The Lancet, August, 1899.
22. Jour. of Laryngol., 1899.
23. Rev. Hebd. de Laryngol., August, 1903.
24. Arch. of Otology, 1903.
25. Ann. Jour. Med. Ses.
26. Arch. f. Laryngol., vol. iv, No. 3, 1903.
27. N. Y. Med. Record, 1904.

per cent.; in three of these, however, simple opening and draining had been previously performed without success, the more radical method having been a secondary procedure. It is evident, therefore, that a considerably larger proportion of fatalities have occurred after the Ogston-Luc operation than after the operation of obliteration. I think that the question of a second operation on the same patient is one of some importance relative to the mortality. We naturally ask ourselves, Is the patient placed in a worse condition for further interference if the previous operation has proved a failure? Of the comparatively small number of fatalities quoted above, no fewer than five of the patients had been subjected to two or more operations by the Luc method. Three of these subsequently underwent the obliteration operation and died. I am, therefore, inclined to think that multiple operations exercise a detrimental effect, although we know of cases which have successfully undergone the simpler procedure and have been finally cured by more radical methods.

The presence of a discharging fistula in the forehead as the result of failure to cure the sinus suppuration must place the patient in a less satisfactory condition for further interference than if the skin remains unbroken. In the fatal case under my own care, to which I have already referred, there remained as the result of two unsuccessful Luc operations a permanent fistula in the line of the eyebrow discharging pus. At intervals there was considerable phlegmonous swelling of the scalp covering the lower part of the forehead, and it is possible that the bone forming the anterior wall of the sinus had already become the seat of septic infection. If we can satisfy ourselves that a patient in this condition is more prone to such fatal complications as we have enumerated, and if further operative measures are undertaken, then we have still another argument against the Ogston-Luc procedure. Not only does it give a greater number of failures, but it jeopardizes the non-successful case which will subsequently require more radical treatment.

In order to avoid the occurrence of such fatalities it is very necessary to try and determine when and how the infection takes place which leads to the spread of the septic process. A careful study of failures in the past should be the stepping-stone to future success.

I am of the opinion that in those unfortunate cases in which death results the inflammatory condition is lit up during the operation. The granulation tissue in the sinus which has hitherto formed a barrier to the invasion of the organism is broken down, and thus a path is opened which readily admits of their further spread in the frontal bone. I am now in the habit of using small flushing spoons while removing the diseased mucous membrane, a constant stream of warm sterile saline or boracic acid solution thus constantly playing on the surface of the bone. In this way an attempt is made to remove all septic material at once from the wound and thus to lessen the risk of further spread. If the patient's head is at the same time kept dependent the lotion readily flows over the vertex, so that the eyes are not exposed to the risk of infection. When curetting of the sinus is not complete we have a state of affairs present which must necessarily increase the chance of a dangerous complication arising. Foci of septic material are left, which may readily contaminate the newly exposed bone in the neighborhood. It is possible, as Lack has suggested, that the organisms may invade the anterior osseous wall of the sinus and thence spread directly into the vertical portion of the frontal bone. The density of the bone forming the anterior wall of the sinus varies considerably and in some instances presents a markedly diploic appearance. In neither of Lack's fatal cases was the mucous membrane of the sinus curetted, yet an osteomyelitis of the frontal bone supervened and death followed from intracranial complications. Tilley blames defective drainage into the nose, coupled with complete closure of the skin incision, as causes of disaster in these cases. Most surgeons will probably agree with the necessity of establishing free drainage, a point which has from time to time been insisted on by the majority of writers on the subject. In two of the unpublished fatal cases the operator informs me that no sutures were placed in the skin incision. In one case he attributes the fatal result to defective nasal drainage; in the other, numerous ethmoidal cells extending into the orbital roof were overlooked and bone sepsis was thus set up.

Do statistics show that the mortality occurring after operation is less in the last two or three years than it was previously? Is a riper experience leading to uniformly better results? While I think we may certainly answer the second question in the affirmative, one must admit that of the twenty-four fatal cases which have formed a basis for my remarks, no fewer than nine have occurred during the last two years. It is not my intention to overestimate the grave risks which may attend operation on the frontal sinus, nor would I have it inferred that because any one procedure has been followed by a certain number of fatalities that consequently it must no longer be attempted in suitable cases. Further, unfortunate accidents of this nature should not lead us to decline to operate on our patients should they desire relief at our hands. On the contrary, our failures should stimulate us to better work, because there is no better school than the school of experience. They should be the means of insuring more certain success in the future and we should do all in our power to improve our operative technic and at the same time be careful to carry out the most rigid asepsis in its minutest detai

DISFIGUREMENT.

There is, however, another very important aspec this subject, and that is the question of disfigurem No operation on the frontal sinus can be undert without this point presenting itself, and it is mainly this reason that the subject has been so much deba Were it not for this important consideration, much has been published on the surgery of the frontal si would never have been written. If the surgeon is gi a free hand by his patient and is asked to effect a c regardless of disfigurement, there is no question that will prefer to obliterate the sinus entirely and thus m any further trouble impossible. It is only occasiona however, that the position of affairs is so satisfactory, question of age, sex and social relations as a rule play an important part. Consequently it is our duty to s to obtain the maximum amount of success with the mi mum of disfigurement. There is no doubt about the c metic advantages of the operation performed accordi to the method first practiced by Ogston-Luc. The pres ervation of the anterior wall of the sinus and the imme diate closure of the eyebrow incision may be followed by such excellent results that in the course of time it may be impossible to observe any difference between the two sides of the face. Figures 4 and 5 illustrate patients whom I have operated on by the Luc method. It is unfortunate that equally satisfactory curative results can not always be obtained by this procedure.

With the obliteration of the sinus, on the other hand.

and the necessary removal of its anterior osseous wall, the contour of the forehead is to a certain extent destroyed. There consequently follows a greater or lesser degree of disfigurement, depending more on the antero-posterior depth of the cavity than on its superficial extent. The deeper the sinus the greater is the amount of the sinking in of the overlying soft tissues, and consequently the more pronounced is the subsequent depression. There is, however, undoubtedly considerable difference to be observed in the results obtained, a difference depending partly on the natural contour of the forehead in different individuals, the depth of the sinus and undoubtedly also on the possibility of the surgeon being able to leave more of the bony floor in one case than in another. As regards the skin incisions, if made in the line of the eyebrows, or even when a vertical incision is employed in one of the natural hollows, they are practically invisible, so excellent is the healing in this vascular region.

It is sometimes advanced as an argument against interference with the osseous floor of the sinus that diplopia or double vision may be produced from interference with the pulley attachment of the superior oblique muscle. This complication undoubtedly occurs in some cases. In one case detachment of the pulley may be followed by temporary interference with vision; in another no such effect is produced. It does not, however, as a rule, appear to be more than a transitory complication, and we must not regard it in the light of a contraindication to radical treatment. My own experience would lead me rather to regard detachment of the superior oblique muscle in a less serious light than some have done.

We have now discussed more or less thoroughly the arguments for and [illegible] out one or other of the two principles [illegible] early part of this paper. We naturally ask ourselves whether there is not some procedure which will give us all the advantages which attend the obliteration method of operating and which will, at the same time, give as nearly as possible the excellent cosmetic results obtained by the method associated with the name of Luc. Such an operation, if applicable to every case, would certainly be ideal and would terminate the many discussions which have been held on this subject.

OSTEOPLASTIC OPERATION.

By means of an osteoplastic operation an attempt has been made to overcome some of the difficulties, and [illegible]chönhorn, Czerny, Brieger and Winkler have practiced such a procedure by raising a bone flap from the anterior wall of the sinus. Hajek,[6] too, describes this method as the one which he has frequently adopted. Having previously defined the limits of the cavity by means of the x-rays, he proceeds to raise a triangular flap of bone from the anterior wall along with the superimposed soft parts as illustrated in Figure 6, taken from his work. Good inspection of the interior of the sinus is thus obtained and the small pockets and recesses can be dealt with. In order to gain access to and deal with the anterior ethmoidal cells, he has found it necessary to partially resect the nasal process of the frontal bone, and he finally completes the operation by introducing a large drainage tube into the nose. The bone flap with its superficial covering is replaced and the drainage tube is worn for a period varying from six to twelve weeks.

In a sinus treated in this manner the healing process is necessarily slow, considerable time being required before the new epithelium completely covers the interior of the cavity. The cosmetic results are good, but as the sinus is not obliterated there still remains the possibility of reinfection. Hajek does not give any detailed account of his results, but merely states that since he adopted this method of operating they have been better. He carefully guards against making any definite pronouncement regarding the value of the procedure or as to the duration of the cure after osteoplastic resection. In two of his cases operated on in this way and treated for some months, recurrence of suppuration took place eight and nine months respectively after the operation.

KILLIAN'S OPERATION.

There still remains for our consideration another procedure which, although first described in 1895,[28] has only recently come more prominently before our notice.[9] I refer to the operation which is associated with the name of Gustave Killian of Freiburg. In the author's opinion it fulfills the two main requirements in these cases more than any other method does, namely, the radical treatment of the disease with a minimum of disfigurement. Satisfied on these points himself, Killian is prepared to recommend and carry out treatment even in cases of suppuration where there is no discomfort experienced by the patient beyond the presence of slight nasal discharge. Should a more general and extended experience prove equally satisfactory, it is possible that in the "Killian operation" we have at last obtained a method of dealing with chronic frontal sinus suppuration in large and complicated cavities, which may be regarded as the method par excellence.

The whole sinus with its recesses and partitions is thoroughly inspected and the cavity is almost completely obliterated by the resection of its anterior and inferior bony walls. Further, by the removal of the ascending or frontal process of the superior maxilla, excellent access is obtained to the ethmoidal cells and a large opening of communication is thus made between the frontal sinus and the nasal cavity, so that good drainage through the nose can be established. In order to reduce to a minimum the deformity which may follow so extensive a dissection, the supraorbital bony margin is preserved as a bridge between the gap formed by the removal of the anterior sinus wall on the one hand and the floor on the other.

The results of this procedure have apparently proved eminently satisfactory both as regards the cure of the condition and the final cosmetic appearances. This has been the case not only in Killian's own hands, but also in the hands of others who have employed it. Thus we find that of twelve cases operated on in this way by him all, with but one exception, healed satisfactorily. The failure was due to the fact that the opposite sinus discharged through an aperture in the septum and so reinfected the area of operation. After this had been attended to a cure resulted, so that we may regard all the twelve cases as successful. Luc,[10] who has of late adopted this method of operating, informs me that of ten cases treated in this way nine were cured. In the tenth a fistula remained at the inner end of the scar, which he was unable to close owing to the patient being obliged to leave Paris. Thiele[29] reports six cases; in four a cure was obtained after one operation; in one, owing to failure in removing a part of the floor of the sinus and a pocket being thus left, a second operation was necessary, but at the time of writing sufficient time had not elapsed to admit of his recording it as a satisfactory result. In the remaining case death occurred apparently from meningitis four days after the operation. This case is included among the deaths already referred to. Siebenmann[29] has been thoroughly satisfied with the results which he has obtained by this method. In a case operated on by myself a few months ago an excellent result has been obtained. Of the twenty-nine cases above specified in which Killian's method was practiced, twenty-six were cured, or 83 per cent.

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[28] Münch. med. Woch., No. 28, 1895.

The cosmetic results have also proved to be very encouraging. By leaving the supraorbital margin, the contour of the eyebrow is preserved and the depression which attends complete removal of the anterior and inferior walls of the sinus is undoubtedly minimized. Killian considers that there is less disfigurement after the removal of both the anterior and inferior walls than when the anterior only is resected. The orbital tissues take a considerable share in the filling up of the sinus area, so that the sinking in of the soft parts covering the vertical portion of the sinus is thereby reduced. One can not fail to be struck while carrying out the operation, both in the living and on the cadaver, with the ready manner in which the orbital fat rises up into the horizontal part of the cavity on removal of the bony floor of the sinus.

If the cavity is a deep one it is impossible to avoid some degree of flattening above the supraorbital margin; in order to diminish this as far as possible it is advisable to bevel the cut edge of the anterior wall at the upper margin of the sinus. In some cases where the sinus is deep and the septum between the two cavities is consequently prominent, the scalp may not fall satisfactorily against the posterior osseous wall of the sinus, so that a small cavity may persist in this situation. When the operation is performed on both frontal sinuses Killian advises the removal of the intervening septum on the ground that the depression which follows presents a more uniform appearance than when the septal ridge is preserved. Both Luc and Thiele comment favorably on the cosmetic results in their cases. Figures 7 and 8 represent a patient as seen three months after operation and the disfigurement is not marked. The removal of the ascending process of the superior maxilla does not lead to deformity. It has been urged against the Killian method that the incision carried downward on to the face is a disadvantage, but the skin wound there, like a vertical incision on the forehead which is sometimes practiced in frontal sinus operations, heals so readily that no appreciable scar is left.

The remarks which we have already made regarding the occurrence of diplopia apply equally in this connection. It may occur as a temporary drawback, but I am inclined to the opinion that there is an exaggerated fear regarding the production of this complication. Killian met with slight transient iritis in three of his cases, but by the prophylactic use of atropin this can be avoided. I have never met with this complication after extensive operations on the sinus. Great care, however, should be taken to handle the eye as little as possible and to avoid any undue pressure on it. The operation no doubt exposes the eye to the risk of injury and is more delicate to execute, is more laborious, and also occupies a longer time, but if better cosmetic results and a permanent cure can be obtained by it, such disadvantages must not be regarded as contraindications.

If exception is to be taken to any one point in the procedure, it seems to me that it lies in the fact that the cavity is not completely obliterated. A space remains behind the inner end of the bridge which continues to secrete and discharge a certain quantity of pus until a new lining membrane growing upward from the nasal cavity has completely covered the granulations. It is true that this cavity is merely a diverticulum of the nasal chamber and is accessible from it, but it prolongs the healing process, and two, three or more months may elapse before that is completed. Luc pays considerable attention to the after-treatment of these cases. The crusts which form in the frontonasal region are removed daily and a tampon of wool soaked in peroxid of hydrogen or in a weak iodin solution is carried upward into the cavity which is left. He lays considerable stress on the necessity of keeping the scalp in close apposition with the posterior wall of the sinus by means of a firm bandage maintained for a considerable period of time, a procedure which I would certainly indorse. It is very necessary that this apposition of surfaces should be accurate, so that the upper part of the cavity may be completely obliterated.

GENERAL CONCLUSIONS.

Certain general conclusions may be drawn from a study of this subject. In the first place it will be admitted, I think, that there is no single method of procedure applicable to all cases of chronic suppuration in the frontal sinus. When the sinus is a small one and we feel confident that we have thoroughly inspected it through the aperture made in the anterior wall, and when no ethmoidal disease coexists, simple opening and draining by the Ogston-Luc method may prove satisfactory. In these cases it is very necessary to insure a permanent communication between the sinus and the nose. On the other hand, we may prefer to obliterate such a cavity without incurring the risk of much disfigurement. In every other class of cases I would recommend and practice obliteration of the sinus.

The whole cavity may thus be thoroughly inspected and its recesses and bony partitions dealt with; better access to the ethmoidal cells may at the same time be obtained and a large communication made with the nose by resecting the frontal process of the superior maxilla. If the sinus is shallow and the supraorbital region is not prominent, it is unnecessary to preserve the bridge of bone. If more extended experience will show that the operation suggested by Killian provides satisfactory curative results with less disfigurement than is associated with other radical methods, then we probably have at our command an operative procedure which will take the first place. Whatever be the exact radical procedure adopted, there is no doubt of the value of removing the ascending process of the superior maxilla in order to gain better access to the ethmoid labyrinth and nasal cavity.

I am fully aware of the fact that this paper can not be regarded as a complete exposition of the subject. There are some points which have only been briefly touched on, and there are others which have not been considered at all. I have endeavored to place before you the broad principles which should guide us in dealing with these important and often troublesome cases. Questions of detail depend to some extent on individual operators and are points which may be conveniently taken up in the subsequent discussion.

It seems to me that the time has come when a collective investigation into the results of surgical interference on the frontal sinus and possibly also on the antrum might prove of the greatest value. Lack of sufficient opportunity has hitherto prevented me from undertaking this, but if we could obtain a really accurate report of the chronicity of the cases, the number of sinuses affected, the surgical method employed in operating, the treatment of the wound and the results obtained as regards cure, relapse, the amount of disfigurement produced and a fatal issue, we would possess a valuable guide for our future work. The statistics which I have quoted here are of a somewhat fragmentary nature and are gathered from the work of a comparatively small number of men. Perhaps the time is not far distant when we may be the fortunate possessors of the information to which I refer. It should be the aim of all of us to so perfect our methods that we are able to operate on every patient with frontal sinus suppuration, confident that we will effect a cure with the minimum of disfigurement.

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[29] Arch. f. Laryngol., vol. xv, 190

In conclusion I wish to acknowledge the valuable assistance which I have received from my friend, Mr. John Grieve, in the preparation of a number of my photographs, and to express my thanks to Prof. D. J. Cunningham of the University of Edinburgh for the opportunity kindly afforded me for dissection on the cadaver.

DEMENTIA PRÆCOX.*

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PHILADELPHIA.

In the writings of some of the earlier authors, notably Pinel, Spurzheim and Esquirol, we find that they recognized the affection now so widely known as dementia præcox. This recognition was, to be sure, vague and imperfect; the affection was naturally confounded with other dementias, paretic, organic and alcoholic and yet these early writers were aware that there was a form of idiocy which was not congenital, and which supervened only after the organism had attained a certain degree of development. Spurzheim, for instance, speaks of an "accidental idiocy," while Esquirol speaks of "accidental and acquired" idiocy; thus the latter says that there are children who are very well at birth, who increase in stature at the same time that their intelligence develops and who are very sensitive, lively, irritable, passionate and possessed of a brilliant imagination, a developed intelligence and an active spirit. This activity, not being in relation to the physical strength, these creatures use themselves up, they rapidly exhaust themselves, the intelligence becomes stationary, they acquire nothing more, the hopes to which have given rise vanish, while they finally pass into a terminal period of dementia. Subsequent writers recognized similar conditions, e. g., Rousseau and Moreau, though the former regarded primary dementia of the period of puberty as very rare, while the latter declares that such cases (early mental maturity and later idiocy) are very frequent. Morel,[1] under the title of "Hereditary Insanity, with Limited Intellectual Existence, Tendencies, Precocious and Innate to Disease, Transition to Idiotism, the most Irremediable, under the Influence of Certain Intercurrent Causes, etc.," describes cases which clearly belong to the hebephrenic or simple form of dementia præcox, and in commenting upon them, he says that a sudden immobilization of all of the faculties, *une démence précoce,* indicates that the young subjects have reached the termination of the intellectual lives of which they are capable. They live intellectually only up to a certain age, after which arrest takes place and they fall progressively into a state which he can only compare to idiocy. To Morel belongs the credit of having first made use of the expressive designation *démence précoce,* and it was Arnold Pick of Prague who first employed its Latin equivalent, *dementia præcox,* now so largely used. Pick described a number of cases clearly belonging to this group of affections.

It is not necessary to dwell here on the epoch-making studies of Kahlbaum, who first differentiated hebephrenia and catatonia (1863, 1874) from the great mass of demented cases, nor is it necessary to speak of Hecker's historical study of hebephrenia (1877). Time and the object of this paper also forbid comment on the writings of subsequent authors.

There is one author, however, whose name must be mentioned, for he has made the domain of dementia præcox peculiarly his own. His views, novel and striking, at one and the same time excite our admiration and challenge our criticism. It was Kraepelin who first gave to the term dementia præcox a broad interpretation. His point of view appears to have been reached by a process of gradual development. In the fifth edition of his Psychiatry, he still makes use of the term dementia præcox as designating a form of mental disease practically the equivalent of the hebephrenia of Hecker and Kahlbaum, and he limits the term to this designation. In this edition (the fifth) catatonia is still treated separately and not embraced under the heading of dementia præcox, and the like treatment is accorded to dementia paranoides. In the sixth edition, however, of his work, Kraepelin greatly expands the term dementia præcox; in fact, he gives it a new meaning. He no longer describes a specific form under this name, but applies it equally to hebephrenia, catatonia and dementia paranoides; in other words, these diseases are now treated by him as only so many different forms of one affection. It is difficult to speak in moderate terms of the value and importance of this brilliant generalization. It has served to greatly reduce the difficulty of study and classification, and even of prognosis. Furthermore, it has enabled us to give to certain *symptoms* a fundamental value and to others a value merely secondary—in other words, to properly co-ordinate related facts.

However, this change, and the present status of the subject, makes it imperative that certain important points should be considered. To begin, the name itself, dementia præcox, demands discussion. The term "dementia" implies of necessity a downward or degenerative process; in the psychiatric mind it is associated with the mass of hopeless terminal demented states which are met with in the asylums, and yet, as a matter of fact, it is known that a history of persistent or permanent mental loss by no means always obtains in dementia præcox. Every asylum will bear witness to the fact that cases of hebephrenia and catatonia do recover, while even a larger percentage of recoveries (among hebephrenics) is noted among the milder cases, whose condition does not demand asylum commitment, i. e., the extra-mural cases. While it is true that in the great majority a hopeless dementia is the final outcome, still Kraepelin himself admits a not small percentage of recoveries, 8 per cent. for hebephrenics and as high as 20 per cent. for catatonics—though he considers the possibility of recurrences.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Traité de Maladies Mentales, pp. 562 to 566.

If recovery takes place at all in dementia præcox, surely the term dementia is inappropriate; the objection to its use is not only scientific but ethical. Far better is it to employ a term such as *das Jugendirresein* of German writers,[2] a term the English equivalent of which is the insanity of youth, or better still, the insanity of adolescence. The term dementia præcox conveys, in its very sound, an unfavorable prognosis; not so with the term insanity of adolescence. This presupposes nothing as regards the future, and leaves the question of recovery to be determined by the course of the case; sentence is not pronounced on the patient at the time of the making of the diagnosis, but is charitably as well as scientifically withheld. Finally, the fact that youthful patients are also liable to suffer from the various infectious or toxic psychoses and to manic-depressive insanity can offer no objection to confining the term insanity of adolescence to the field occupied by hebephrenia, catatonia and dementia paranoides. Neither the infectious and toxic insanities nor the manic-depressive form are peculiar to youth. Further they already have distinguishing appellations.

Another point of importance is the use of the term hebephrenia. Hebephrenia implies of necessity a disease of puberty, and while there can be no doubt that the time at, near or about this epoch is the most favorable period for the development of this affection, it is equally well established that hebephrenia may occur much later. Furthermore, the term hebephrenia is apt to convey to the mind of the student that there are special and distinguishing features presented by its history and symptoms, whereas it is in reality the simple expression of dementia præcox, and it should be so designated. It is certainly far less confusing to the mind of the student to speak of the simple form of dementia præcox or insanity of adolescence than to speak of hebephrenia. In fact, J. Rogues de Fursac, one of the French disciples of Kraepelin, has already adopted this term. Instead, therefore, of speaking of the different forms of dementia præcox as hebephrenia, catatonia and dementia paranoides, we would merely speak of the simple form, the catatonic form and the paranoid form. Terminology is often confusing, and whenever possible clearness should be aimed at.

Holding now clearly before our minds these three forms, let us briefly analyze their elements. In reading Hecker's historical paper on hebephrenia, one gleans three essential symptoms; first, an initial period of variable duration during which the patient is in a phase of depression; second, a period during which the depression fades and elements of expansion become manifest; third, and most important of all, a progressive dementia noticeable early and becoming gradually more and more marked; this is a clinical description which I need hardly point out accords closely with our experiences of to-day.

If we subject the symptom group of catatonia to a similar process of analysis, we find that there are present, as in hebephrenia, the same cardinal factors—the initial wave of depression, the subsequent wave of expansion, or mingled expansion and depression, and a progressive dementia, together with definite and characteristic motor symptoms which give to the disease its specific peculiarities and name, i. e., the fixed attitudes, the stereotypy, catatonia, automatism, automatic resistance, etc. When we turn our attention to dementia paranoides, and I now use the term in Kraepelin's original application—as employed in his fifth edition—we come to a group of cases in whom there is as before an initial wave of depression, a subsequent wave of expansion and progressive dementia, but added to which there are not now special motor phenomena, but special psychic phenomena in the shape of delusions, persecutory or expansive, which in their character—though unsystematized—suggest or simulate paranoia.

In studying the group of insanities of adolescence as a whole, certain other facts also become evident; first we learn, as was pointed out several years ago by Pickett, that the various forms tend to occur by preference at certain ages; that is, other things equal, cases of hebephrenia begin at a younger average age than do cases of catatonia; second, cases of catatonia begin at an earlier average age than cases of dementia paranoides, and thirdly, cases of dementia paranoides constitute the oldest group of all. That this generalization is not detailed in its application goes without saying. It is as are other scientific truths, general in its character, but is of the most decided significance. To some extent, the phenomena observed are in keeping with the facts of age, that is, the symptoms largely correspond to the degree of mental development to which the patient has attained at the time of the inception of the disease.

In the early, the hebephrenic or simple form, we have a wave of depression and a wave of exaltation, which is usually of a moderate altitude. It is unusual for the emotional wave to assume the depth or height seen in older cases. Sometimes, indeed, the depression and expansion are so slight that they are described by such terms as "mild depression," "mild hypochondriasis" or are merely characterized by a neurasthenoid group of symptoms. Indeed, the wave of expansion or exaltation may be so mild that its manifestations may be revealed only by physical elation, or boisterous and noisy conduct.

Again in hebephrenia the delusive beliefs are manifold and without attempt at definite arrangement; in other words, there are present the symptoms of moderate initial depression, moderate expansion with a simple dementia. When we turn our attention to catatonia we find that the phases of depression and expansion are somewhat more marked, while the psychic content of the delusions is somewhat higher—less childish or puerile on the whole—than in hebephrenia and a tendency to some arrangement of ideas, however loose, is frequently observed. In dementia paranoides, phases of depression and expansion are likewise marked, though the most prominent features now present are the delusions and hallucinations which both in their content and persistence suggest paranoia.

Let us now consider briefly the position of dementia paranoides. In his fifth edition, Kraepelin, to whom we owe this term, limits it to cases characterized by disconnected persecutory and expansive ideas, which rapidly pass into a persistent terminal confusion or dementia. In his sixth edition he made a decided change; this consisted in including under dementia paranoides the group of cases which he had formerly designated as the "phantastic form" of paranoia. The change was a very radical one, for it disposed at one blow of a large mass of cases universally regarded as belonging to paranoia. It includes almost the totality of the *délires systemtématisés* of French writers—the *délire chronique* of Magnan—and leaves nothing of paranoia proper except the form corresponding to Magnan's "insanity of the degenerates," or Kraepelin's *"combinirte Form."* In his fifth edition, Kraepelin depicted as phantastic paranoia, the form in which the delusions gradually withdraw themselves from the influence of actual perceptions, and are based more and more on hallucinations and independent invention; the disease presents the usual phases of depression, transformation and expansion. In his seventh edition, Kraepelin adheres to this radical substitution.

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[2] Troemner and Ilberg.

I can not but feel that this change has been an unfortunate one, and that by it Kraepelin does violence to facts. It is certainly absurd to speak of a dementia as precocious which may begin as late as 40, 45, 50 or 55 years of age. Equally inapplicable is the term "Jugendirresein." In concluding his very excellent description of this form of paranoia in his fifth edition[3], Kraepelin says that the majority of the cases occur between 25 and 40 years of age; he adds that there are a group of cases which begin at a more advanced age—between the fiftieth and sixty-fifth year. In his description of the phantastic form of paranoia, in the sixth and seventh editions of his work, included now under dementia paranoides, this paragraph as to age is omitted. Why? Are the facts which were true in 1896 no longer true in 1899 or 1904? That they are still true will be admitted by every physician of asylum experience. Do such facts warrant the forcing of this group of cases into the frame of precocious dementia? That this group of cases really belongs under the head of paranoia we believe is established by the following: In the first place, it is impossible to sharply differentiate them from those to which Kraepelin has now limited the term—a group which, as we have already stated, corresponds to that designated at one time by Magnan as the insanity of the degenerate, and which was formerly designated by Kraepelin as the *"combinirte Form."* The latter constitute a group which is characterized by a very slow evolution of symptoms and by a very prolonged course, but in which the stages of depression, transformation and expansion are alike discernible. The cases are characterized by the fact that their delusions are based more or less largely on misinterpreted perceptions rather than on hallucinations, and that the delusions are perhaps better defined, better systematized and more firmly fixed than in the "phantastic form" or *délire chronique,* and yet these differences are only relative. They are, after all, only variations of degree and not of kind. Even if we take the point in regard to the absence of hallucinations in the *"combinirte Form"* as the standard of differentiation, we find that the moment we analyze it, it breaks down. Not only is it a fact that special sense hallucinations—hallucinations of hearing and of sight—do occur in some cases of this form, but my own observation has convinced me that while special sense hallucinations are relatively uncommon, general coenesthetic and psycho-motor hallucinations are by no means infrequent, and that the latter, as in the other forms of paranoia, form the foundation stone on which is based the mental attitude and the emotional tone of the patient. To define paranoia as a disease of the logical apparatus is a bizarre misstatement, which leaves out the intrinsic and fundamental features of the affection. That there is in all probability an underlying unity in all of the auto-degenerative psychoses which binds together all of the various forms of mental disease beginning with hebephrenia and ending in Magnan's paranoia (insanity of the degenerate, *"combinirte Form"*) is very probable. Perhaps there is an underlying unity of cause; indeed, it seems to me that this is probable. The mental picture presented is so varied by the elements of age and other factors that special clinical pictures are inevitable. If a term be devised (dementia præcox being abandoned) which would include all of these progressive degenerative changes under one head it would perhaps be right to consider them together and to treat of them as one disease. In such case, there would not only be included the phantastic paranoia, but the other form of the paranoia as well. I believe, however, that such a generalization as this would be scientifically and practically very disadvantageous, and would be as objectionable as is the present inclusion of the phantastic form of paranoia under dementia præcox.

We have in the solar spectrum seven colors, each color passing by a most gradual transition into another. Shall we, because it is impossible to draw hard and fast lines—because we can not say, for instance, where violet ends and blue begins, say that violet and blue are the same; or that green and yellow—most opposite in their reaction on the human sensorium—are the same because they pass by insensible transition one into the other? Surely nothing can be gained by wiping out well established lines of demarcation. Change does not always mean progress; it sometimes means error. Practical experience teaches us that no sharp differentiation can be drawn between the various forms of dementia præcox—hebephrenia, catatonia and dementia paranoides. Every now and then we meet with cases of hebephrenia in which passing motor phenomena, convulsions, transitory rigidity or stereotypy is noted, or again cases of dementia paranoides in which like features cause an approximation to catatonia. Similarly I believe that it is often difficult, if not impossible, to draw a differentiation between a dementia paranoides and a phantastic paranoia just as it is impossible always to make an absolute differentiation between the latter and the paranoia of Magnan, the "combinirte" form of Kraepelin.

DISCUSSION.

Dr. F. W. Langdon, Cincinnati, said that dementia præcox as a name, apparently, does not apply to a considerable number of these cases. When this condition develops at 30 or 40, or even at 50 years of age, and when it is not terminal dementia nor paretic dementia, nor post-organic dementia, they are classed as dementia præcox. If it can be shown that some of these patients had their original attack at adolescence and that what was looked on as a recovery has really been only a remission, then perhaps they are correctly called dementia præcox. Dr. Langdon considers that this condition is primary degenerative psychosis, which may be arrested for a time at various periods, and which, in most cases, eventually tends toward complete dementia. While no sharp lines of demarcation can be drawn in the psychoses, yet there must be some kind of demarcation for practical purposes, just as in the colors of the spectrum artificial lines must be drawn where the natural do not exist. Dr. Langdon thinks that while the term insanity of adolescence may be applicable to cases of dementia præcox, it does not clear up matters very much, because cases occur at 30, 40, or at 50 years of age, which can not be called insanity of adolescence unless it can be shown that they began at an earlier age. Experience seems to attach a significance to the term dementia præcox, though probably there is no reason why primary or idiopathic dementia would not be just as suitable.

Dr. F. X. Dercum stated that he believes that the older cases should not be classified with the younger ones. He believes that the original designation ought to stand and to stand unmodified; otherwise it loses a great deal of its clinical value. He does not believe that we ought to wipe out distinctions where they exist, just because the cases merge one into the other. The early cases are a distinct group by themselves; they are different from the adult cases of paranoia. It seems to him that it mars the picture, and certainly makes the term meaningless to include the adult cases of paranoia with those of dementia præcox. He thinks that it would be better to classify the juvenile cases under the term insanity of adolescence and leave off the term dementia præcox.

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[3] Page 697.

THE NATURE OF TRAUMATIC SCLEROSIS.*

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Though most of the confusion which once surrounded the results of trauma to the nervous system has been dispelled, so that we are able to recognize definitely most of the functional and organic diseases for which trauma is a competent producing cause, the nature of the condition in question is still open to investigation. The questions at issue at the present time seem to be, is this pathologic entity with an organic basis, is it only a grave type of hystero-neurasthenia, is it a distinct functional neurosis, or is it a type of true multiple sclerosis?

The evidence on which rests the claim for an organic basis for this condition dates back to the findings of Westphal, who, in 1878, described disseminated foci of sclerosis in the cerebrospinal axis as a result of trauma. Bramwell also described these lesions as secondary to minute hemorrhages. Sterling Kranthal, Dumenil, Petit and Edges confirmed these findings in their descriptions of degenerations of the columns of the cord, minute hemorrhages into its gray matter, and arterial sclerosis of both spinal and cerebral arteries as a result of trauma.

The evidence furnished by these pathologic findings is further supported by the results furnished by the experiments of Mendal, who fastened dogs to a rapidly revolving table and thus produced adhesions of the cerebral membranes, increase in the glia nuclei, vascular congestion and degenerative cell changes. Fustener, by continuing the experiment for a greater time, was able to produce besides these changes sclerosis of the posterior columns and optic nerves. Schmaus, by diffuse violence applied to the spine, was able to produce degenerations in the spinal neurons and vascular degenerations. His conclusions, as summed up by Knapp, are: that there is a distinct traumatic necrosis of nerve fibers; that more fibers die than can be recognized; that the fibers may be merely fatigued (fatal cases with no lesions and recoverable ones); that this fatigue of fibers may cause their death (gradually produced lesions), and that a gliosis ending in tumor formation may occur.

Since the time of these writers their findings have been so often confirmed that there *seems to* be no conflict of evidence as to the theory that trauma is a competent producing cause for these findings.

Our present knowledge of the results of diffuse violence to the cerebrospinal axis can be summed up as follows: That said violence can produce a condition known as concussion or commotion; that in this condition there may be localized hemorrhages, laceration contusion of nerve tissue, multiple minute hemorrhages or thrombi scattered throughout the cerebrospinal axis, general edema, distension and infiltration of the blood vessels; that from these lesions the following secondary changes may occur: The vascular hyperemia and infiltration of the vessel walls not only decreases the amount of *nutrient lymph supplied to the nerve* tissue, but also interferes with its return by a proliferation of the adventitia and a collection of débris and leucocytes in the perivascular spaces.

This then deprives the nerve cells of nutriment, and at the same time they are poisoned by waste products. Monti's observations show that the nerve cells die in a few hours when their nutrition is entirely cut off, and that defective nutrition causes the same changes after longer periods; the degenerative changes beginning in the distal parts of the cell and finally destroying the nucleus.

The effect of rupture of an axion is to cause swelling of its cell body, an eccentric position of nucleus, a disappearance of the chromaphilic elements, a loss of the striped appearance, and finally disintegration. In embolism and thrombosis the cells in the affected areas become edematous, the chromatin particles collect in the centers and finally disintegration occurs. In all *forms of injury to the nerve cells its dendrites* are first to degenerate, then its axon, and finally the cell body. The changes shown in the nucleus of these cells are a more deeply staining of the nucleus, which becomes vacuolated and finally small and angular. Coarse, granular changes are said to be characteristic of the chronic forms of degeneration, and depigmentation of sclerotic processes. The changes described in the neuroglia cells consist of swelling, an engorgement with granular detritis, and finally disintegration. The spider cells are said to resist the longest. There seems to be no conflict of evidence as to the theory that a nerve cell which has undergone degeneration is ever replaced, but we seem to have as yet no facts to show how far this process can be developed so as to forbid recovery.

The final results then of commotion or concussion of the cerebrospinal axis, in which the damage has been severe enough to forbid recovery would appear to be the production of areas of degeneration, areas of sclerosis and possibly arteriosclerosis, Bailey and Meyer considering the latter finding to be a coincidence.

Five cases of my own, which illustrate the various stages of the development of these lesions, have come to autopsy.

Case 1.—This case, showing the primary lesions, was *that* of a woman, aged 49, seen in the Kings County Hospital. Family and previous personal history, negative.

History.—Two weeks before admission she fell down a flight of stairs, received bruises about the body and limbs, and for a few hours suffered from shock. After one week she became unable to work.

Examination.—Examination showed the patient to be very stout and to lie with the limbs flexed. When made to stand, she slowly sank to the floor. Her speech was indistinct, and she would laugh or cry without obvious cause; memory and volition were poor. There was an intention tremor of the face and limbs, with loss of muscular power. The deep reflexes were exaggerated; anesthesia with ill-defined outline existed below the elbows and knees. The pupils were dilated, but responsive.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Course of Disease.—She developed a feeble heart, numerous small bedsores, incontinence of urine and feces, and died at the end of four weeks.

Autopsy.—The brain and cord were found congested and edematous, and the pia cloudy. The vascular walls were thickened by infiltration of leucocytes. Scattered through the brain and in the gray matter of the cord were numerous small hemorrhages, and thrombotic areas of degeneration. In certain areas no nerve cells were to be found, and they were replaced by newly-formed neuroglia tissue. The neuroglia cells were swollen, and the lymph spaces choked with cells and granular matter.

CASE 2.—This case, showing the intermediate stages, was that of a man, aged 40, seen in the Kings County Hospital.

History.—He worked as a laborer, and is said to have been in good health until two months before admission, when he fell down a flight of stairs. He was stunned, bruised about the head and body, and rapidly developed a spastic paraplegia.

Examination and Course of Disease.—Examination showed speech to be slow and indistinct. There was rigid muscular atrophy with flexion of the limbs, and an intention tremor of the face, tongue and hands. There was fibrillary twitching in the calves at times. The deep reflexes in the limbs were increased with absence of the plantar reflex. There were ill-defined anesthetic areas below the middle of the forearms and in the legs. There were several small bedsores and retention of urine. Death occurred after five weeks.

Autopsy.—The autopsy findings were similar to those in the first case, but the hemorrhagic areas were in a more advanced state of degeneration, the sclerotic areas were more fully organized, systemic regeneration was present in the cord, and the arterial walls were much thickened.

The three fully developed cases in which an autopsy was obtained presented the following pathologic findings:

The cerebral cortex was flattened and the pia thickened, opaque and infiltrated with serum, leucocytes and granular matter. The veins were dilated and their walls infiltrated with cells. The arterial walls were much thickened. The cortex was thin and pale on section. The cortical nerve cells were much diminished in number, and as a rule degenerated. In variously sized areas no cells were to be found. The neuroglia was much increased and the lymph spaces were dilated and choked, and scattered throughout the brain; in the cords were small areas of sclerotic tissue. Systemic sclerosis was present in both brain and cord.

ETIOLOGY.

This seems to be all the pathologic evidence which we possess to support the theory of an organic basis for this confidence. The evidence furnished the following facts: True cases of this type are not common, for personally, I have been able to find only fifteen in over three thousand cases which have come under my care where some injury to the nervous system existed for which injury was the cause claimed. Nine of these were males and six females. The age at the time of the receipts of the injury varied from 19 to 50. The assigned causes were in three, severe blows on the head, injury to the head and back from falls in three, general contusions from similar falls in two, and five had been thrown about railroad or trolley cars as the result of collisions. In three cases of head injury and in three of general contusion coma was the immediate result, and in the others shock seemed to have been well marked.

As would be expected from the pathologic findings, the development of the symptoms is insidious and the real nature of the condition is only recognizable after a considerable period of time. In my cases this varied between three and twenty-four months, the average being about eight months. During this period thirteen of my cases gave only a history of hysteria or neurasthenia, and of the remaining, one gave the history of an organic paralysis of the arm and the other of an atrophy of the shoulder girdle.

SYMPTOMS.

The symptoms vary both as to number, relative development, and time of appearance. Headache, varying in character and intensity, was present in eleven. Vertigo, either subjective or objective, was also present in eleven. The mental condition showed defective memory and volition, with easily produced laughter or crying in ten. Insomnia was present in ten. The speech was slow, indistinct or syllabic in ten. Nystagmus was present in ten and in three of these associated with strabismus. The pupils were found to be contracted in three, dilated in three, unequal in three, and irresponsive in two. A coarse intention tremor was present in all and rendered the patient's movements trembling, slow and uncertain. This was associated with some loss of muscular strength. Spastic paraplegia was present in eight. The deep reflexes were found to be exaggerated in eight and diminished in six. Areas of partial anesthesia, involving the extremities, never well defined, were present in ten. The visual fields were contracted in eight, and optic atrophy existed in four. Incontinence and retention of urine was present in nine. Besides these symptoms, which are those usually assigned to this condition, thirteen presented also the symptoms ordinarily found in hysteria, one atrophy of the testes, two auditory hallucinations, two epileptic convulsions, one a cerebral hemiplegia, and one a progressive muscular atrophy.

COURSE OF THE DISEASE.

The course of this condition is slow and progressive, with periods of remission. In my three fatal cases, the duration of the disease varied from six to thirty-nine years. Of the other cases, five have progressed, two have developed epilepsy, two have become insane, and of the remaining, their present condition is unknown.

RESUME OF THE LITERATURE.

It will be seen, then, that my cases present the same clinical picture as those described by Dana, Knapp, and Bailey; and form, at least clinically, a distinct group of cases as the result of trauma, but the real nature of these cases, as shown by recent writers on this subject, is still a question open to discussion.

The evidence furnished us by these authorities may be summed up as follows: Bailey, in his work on Accident and Injury, describes them under the title of the "Unclassified Forms," and states that there is no definite knowledge as to their pathology; that he does not claim a common pathology; that some owe their origin to scattered foci of morbid tissue in the brain and possibly the cord, such as occur in the brain in cerebral enteritis, or in the whole cerebrospinal axis in multiple sclerosis; that it is reasonable to suppose that, in these cases, the injury added to the activity of a process already existing rather than caused a sclerosis in previously healthy vessels; that there can be no doubt that minute multiple lesions can occur in the brain and cord from injury giving evidence of commotion, without indicating any particular part injured; that these disseminated areas of hemorrhage best explain the tremor, increased reflexes and psychic inhibition and that in many cases hysterical and organic symptoms co-exist.

Dana[1] states that in some rare cases traumatism may produce multiple minute hemorrhages throughout the nervous centers; that there are usually neurasthenic and hysterical symptoms with those of organic disease; that these cases eventually resemble disseminated sclerosis, and, in Hamilton's System of Legal Medicine, he describes them under the title of the "Grave Neuroses," and further states that, in his opinion, all cases of multiple sclerosis are either traumatic neuroses or the result of acute infectious disease, and that it must be the multiple minute hemorrhages which set up foci of softening, which are followed by the formation of connective tissue nodules.

Oppenheim[2] states that shock may be followed by arterial sclerosis, enteritis, and hyaline degeneration.

Knapp[3] describes this condition under the title of "Traumatic Sclerosis;" states that the evidence that these obscure affections are due to structural lesions is very slight, and that cases of disseminated sclerosis may be caused by injury.

Strümpel[4] states that if a disseminated myelitis should actually follow an acute disease and lead to the formation of multiple sclerotic nodules, this would be an affection similar to multiple sclerosis and yet essentially different.

Starr,[5] in writing on multiple sclerosis, states that the recently reported cases of Gaupp and Blencke are undoubtedly traumatic.

CONCLUSIONS.

This brief résumé, then, presents to us all the real evidence which is furnished by the pathologic findings, clinical observation, and the opinions of recent writers on this subject. It now remains for us to consider the facts in evidence and to apply such rules of exactness as our medical science furnishes in determining the nature of the condition in question. The marked part which neurasthenia and hysteria, as has been said, play in this class of cases, as they do in many other forms of organic nervous disease and especially those cases which follow trauma, has undoubtedly caused some to classify this condition as a type of these neuroses, but when we take into consideration the nature of the real symptoms, such as the syllabic speech, true nystagmus, the pupillary reactions and optic atrophy, the character of the tremor, the character of the reflexes, the true ataxia, the character of the anesthesia, the vesicle paralysis, the bed sores, the fatal course of the disease, and the pathologic findings, it can not be disputed that we are dealing with an organic disease of the nervous system rather than with a neurosis.

The consideration of the nature of this condition has been complicated by the occurrence of a class of cases, first described by Westphal and later by Strümpell, under the name of pseudo-sclerosis. This condition is said to closely resemble multiple sclerosis, to run a long and fatal course, and for which no pathologic basis can be demonstrated. This condition, it is said by Strümpell, can be distinguished from multiple sclerosis by its very marked oscillatory tremor, by the absence of real ataxia, and by its mental condition, in which there are causeless outbursts of wrath and actual maniacal attacks. Personally, I have seen but one such case, but these clinical differences and absence of pathologic findings sharply distinguish it from the condition under consideration. It would appear, then, that beyond a reasonable certainty, this condition in question is one of organic disease of the central nervous system, and that the sole question left at issue is: Is it a form of multiple sclerosis or a distinct pathologic entity?

Taking the pathologic description given by Starr[5] of multiple sclerosis, as a standard, it appears that the condition now under consideration differs from that disease in certain pathologic findings. This writer states that multiple sclerosis is never limited to definite tracts; that it does not lead to secondary degenerations in the various tracts because it spares the axons; that the patches consist of neuroglia fibers and glia cells, and that the essential factor is the production of neuroglia fibers and the disappearance of the myelin sheaths of the nerve fiber. It is in evidence, then, from the facts furnished by the pathologic findings in the class of cases in question, that these cases differ from true multiple sclerosis in the fact that secondary and systematic degenerations do occur; that the axons are destroyed, and that the patches of morbid tissue consist more of fibrous and less of cellular tissue than those found in true multiple sclerosis. This supports the theory of Strümpell, that this condition is similar to and yet essentially different from true multiple sclerosis.

The contention of Bailey and Meyer, that the diseased condition found in the arteries is due to an accidental predisposition and is not one of the essential pathologic processes belonging to the disease, seems to be contradicted by the facts in evidence, for, as it has been shown, this arteriosclerosis is a constant occurrence which is improbable were it only an interposed condition; that vaso-motor paresis with dilatation is one of the natural results of cerebral commotion[6], and that this dilatation may be followed by infiltration and thickening of the vascular walls. It appears, then, from the facts in evidence as furnished by pathologic and clinical observation and from the opinions of recent writers on this subject, that traumatic sclerosis is an organic disease of the cerebrospinal axis; that trauma is a competent producing cause, and that it is not a type of multiple sclerosis but a distinct pathologic entity.

29 South Portland Avenue.

DISCUSSION.

DR. EDWARD B. ANGELL, Rochester, N. Y., said that pathologic conclusions from these cases are unusual because few cases reach autopsy. The period of time during which the degenerative changes occur sometimes lasts so long that the patient passes from under observation. In a certain limited number of cases of trauma there are organic changes in the cerebrospinal axis, but there are a large number in which there are no such changes. Dr. Angell believes that a great deal of confusion has been brought about by trying to establish a new symptom-complex in traumatic diseases of the nervous system. The term "railway spine,". as used by Ericson, expresses injuries of the spine due to trauma and is a very misleading term. Dr. Brush's work will help to clear up a great deal of misunderstanding. A man recently came to Dr. Angell's office who had been injured in a railroad wreck. He was thrown from the train, striking on his back in an adjoining canal, and apparently suffered no injury, being a strong, healthy, robust man. Six months after the accident he noticed a disturbance of the muscular system and at the present time there is a well-developed case of muscular dystocia. In this case the symptoms did not follow the usual course. Undoubtedly, primarily, the organic changes are very minute, but the secondary degenerative changes are sometimes very extensive and not usually accompanied with definite symptoms until some time after the date of the injury. In Dr. Angell's experience in medicolegal matters he has found that many clinicians and neurologists are misled by the appearance of the patient who receives the injury and by the various symptoms of which he complains. The cases should be studied carefully, irrespective of this specific injury, and in this way the truth will be arrived at. In another case, illustrative of the other type, a man received an injury in a railway collision by being thrown down an embankment. There was marked evidence of hysteria and some suggestions of organic trouble. After the settlement of the suit, in which he got about $10,000 or $12,000 in damages, he rapidly recovered. Two years after the trial he was practically a well man and nearly all these pathologic symptoms had disappeared. Dr. Angell believes that the subsequent organic changes depend very largely on the previous health of the neuron receiving the injury. Not all people have a nervous system that is equal in longevity to their arterial system and in minor accidents at times there may be degenerative changes in the nervous system which are not wholly due to the injury.

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[1] Dana: Text-book of Nervous Diseases.

[2] Oppenheim: Diseases of the Nervous System.

[3] Knapp: Text-book of Nervous Diseases by American Authors.

[4] Strumpell: Text-book of Medicine.

[5] Starr: Organic Diseases of the Nervous System.

[6] Phelps: Traumatic Injuries of the Brain.

PREVALENCE AND PROPHYLAXIS OF PNEUMONIA.*

EDWARD F. WELLS, M.D.,

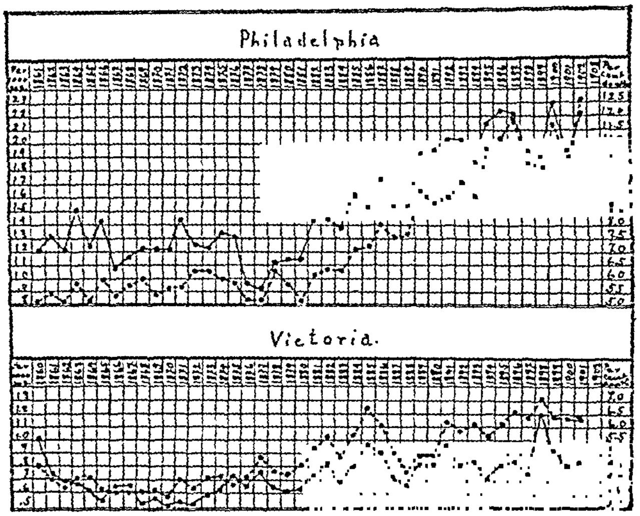
CHICAGO.

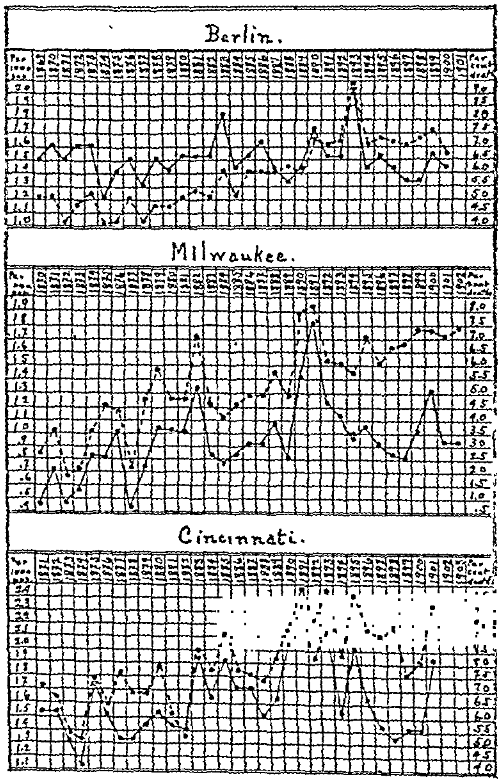
Two years ago I presented to this Section a paper on the fatality and increasing prevalence of pneumonia. with suggestions for individual and communal prophylaxis, and this communication should be considered as being supplemental to that paper.

When we subtract from our mortality bills the deaths caused by infectious diseases, e. g., tuberculosis, malaria, typhoid fever, dysentery, diphtheria, scarlatina, plague, etc., it will be found that comparatively few remain. Such infectious diseases are all essentially preventable, and might well be theoretically wiped off the face of the earth. In the case of some of these this will surely come to pass within a measureable time, but in the case of others this happy period is yet in the indefinitely far-distant future. In the case of some of the great infections. notably tuberculosis, malaria and typhoid fever, the causes, modes of conveyance and methods of prevention are so well known and available that we can contemplate their future with considerable complacency.

Pneumonia is the one great infection in which no systematic and strenuous efforts have, as yet, been made toward prevention. Clearly this has been due to our ignorance of the manner in which the pneumococcus acts as an efficient cause of pneumonia; of avenues of infection and manner of germ diffusion; of efficient and available methods of prevention. The time is now at hand, however, when, with a wider and more exact knowledge of fundamental facts, we are probably in a position to inaugurate a great forward movement in the prophylaxis of pneumonia. In my opinion, we can formulate rules for prevention which will appeal to the reasoning mind of the practitioner of medicine and to the common sense of the layman and which are sufficiently available to meet the exigencies of every-day life. Certainly the conditions are such as to invite a very careful consideration of the subject from every point of view.

Pneumonia is a very prevalent disease and its prevalence is markedly increasing. This increase applies to the deaths per 1,000 of population and to the percentage of total deaths. It probably also applies to the morbidity of the disease, but we lack statistics to positively prove the assertion. The increasing mortality prevalence of pneumonia is graphically shown by the above curves. In these curves the solid line indicates deaths per 1,000 of population. the dotted line per cent. of total deaths.





To what influences may this increased prevalence of pneumonia be attributed? That it is due to any general deterioration of the resisting powers of the populace to morbid infections is disproved by the fact that the average duration of life has been distinctly lengthened during the period of years covered by our inquiry. It is likewise improbable that there has been any general increased vulnerability to this particular bacterial infection. We are, therefore, driven to the conclusion that the pneumococcus has become more prevalent, probably more virulent, or that our opportunities for encountering the germ have been multiplied, or, more likely, that each of these is operative in bringing about the results mentioned. With the pneumococcus as a common parasite in the upper respiratory passages of man, and with pneumococcus-laden secretions from these parts extruded in such manner that they find entrance, as spray or dust, into the respiratory passages of other and unaffected persons, the very general absolute and proportional increase of urban populations and the augmented facilities for travel and the universal tendency for people everywhere to congregate and mingle together, is amply sufficient to account for much, if not the whole, of the increased prevalence of pneumonia.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

During several months I have carefully examined the secretions from the respiratory passages, oftenest from the throat, in 135 persons, and found the pneumococcus present in 61, or 45 per cent. This proportion, it will be noted, is very much greater than that usually found by other observers. In this connection it may be stated that in a considerable number of cases repeated examinations were made, and that in the majority both smears and cultures were examined. The specimens were stained by the Gram method, using a freshly made gentian violet solution and counter staining with pyronin. In the instances in which both smears and cultures were made the pneumococcus was found most readily and oftenest in the smears. The preparations were subjected to careful and prolonged examination, the pneumococcus being the object sought for it was probably found oftener than it would have been were it noted only incidentally. In the majority of the cases the number of pneumococci found were either few or moderate. In some instances the pneumococci were numerous and in a few they were very numerous. In one case, a man who had had pneumonia six years before, and now ill with severe tonsillitis, the germ was present in extraordinary abundance.

At my request Dr. Reynolds, commissioner of health for Chicago, had a special report made on this subject by the director of the municipal laboratory, which is herewith appended:

Chicago, May 26, 1904.

Arthur R. Reynolds, M.D., Commissioner of Health.

Dear Sir:—In reply to your note of yesterday regarding the number of times pneumococci were found in the laboratory specimens, I beg to say that during the month of April ninety-six throat cultures were examined in the laboratory, and pneumococci were found in large numbers in six of these cultures. This would be a little over 6 per cent. I think, however, that if we made a special stain each time we would find a few pneumococci present in a greater percentage of the cases.

I had hoped to make a special stain of each culture in order to give Dr. E. F. Wells, 4744 Woodlawn avenue, a complete report as to the number of times pneumococci are found, whether they be the predominating organism or not. However, the moderating weather that we have had lately has produced a marked decrease in both pneumococci and influenza bacilli, so that 6 per cent of the cultures is about the average for the present.

Very truly yours,

J. F. Biehn, M.D., Director of the Laboratory.

In making these observations there was early noted a peculiar and, I believe, important fact, namely, that in some families every, or nearly every, member had the pneumococcus in the throat, while in some other families no member showed the organism. Comparing these various observations, it was further noted that the majority of the families in which the pneumococcus was peculiarly prevalent had had, more or less recently, one or more cases of pneumonia, while the families in which the germ was not found were, as a rule, without such history. For example:

Case 1.—In 1899 a man, aged 57, had pneumonia. His sputum, examined several times and as recently as last November, always showed pneumococci. He died in December from valvular disease of the heart. On December 10 smears were made from the throat secretions in the case of the widow and also a servant who had been in the family for many years, and in both a few pneumococci were found. They were both suffering from influenza at the time.

Case 2. A man, aged 40, had pneumonia in 1898. In April, 1904, he had a very severe attack of tonsillitis, with the pneumococci as the pathogenic germ present in immense numbers. A few days later smears and cultures were made from the throats of the three other members of the family, and pneumococci were found in each.

Case 3. A man, aged 57, had pneumonia in April, 1904. Of three other members of the family two had pneumococci in their throats. Two other persons who had been in the same house for several weeks did not show the organism.

Case 4. In February, 1904, a man died of pneumonia. A few weeks later examination showed pneumococci in the throats of his widow and a servant who had long been in the house.

Case 5. Two years ago a child had two attacks of pneumonia within a year. The throats of four other members of the family contained pneumococci, while they were absent in the case of the servant who had been long in the house.

Case 6. Four years ago a man, aged 66, had pneumonia. One year ago his wife died with the same disease. Pneumococci are present in the throats of the gentleman and also in another member of the family. Two other persons who have recently become members of the family appear to be free from the organism.

There are exceptions, some of them marked, to the rule:

In one family a boy had pneumonia with middle-ear and mastoid suppuration three years ago. Of the three other members of the family all appear to be free from the pneumococcus. In another family a child had pneumonia three years ago. Of the four other members of the family two have and two have not the germ in their throats. In yet another family the mother has recently had pneumonia, while the pneumococcus has been found in the throat of only one of the other seven members. In yet another family the pneumococcus was found in the throats of each of the four members, although no case of pneumonia has ever occurred in that family.

It would seem that this fact, if confirmed by further observation. offers a plausible explanation for the house epidemics and consecutive family cases which are sometimes encountered.

At the present moment, with an increasing prevalence and case mortality and an unsatisfactory therapeusis, the hope for the immediate future in pneumonia lies in the line of prevention. What can we do to prevent this disease? I answer as follows:

1. For the Individual:—The nasal, pharyngeal and oral cavities should be kept as clean as possible and especially free from accumulations of mucus. When it has been demonstrated that such secretions contain the pneumococcus these efforts should be particularly well directed and maintained. In coughing and sneezing a protective cloth, preferably moistened, should be held

before the mouth and nose. This is especially necessary in the case of pneumonic patients and in those harboring the pneumococcus. The sputum and other secretions of the respiratory tract of such persons should be destroyed before they have become dried. Individuals should, so far as practicable, keep out of range of the extruded pneumococcus-laden secretions of infected persons.

2. For the Public:—The above advice, properly formulated into plainly and succinctly stated rules, should be widely and persistently circulated by the communal health authorities among the laity, and practicing physicians should be furnished a supply of these rules, neatly printed and without imprint, with the request that they give it as their instructions to their patients and clientele. And further, by every means, the interest of physicians and humanitarians in this subject should be aroused and fostered. For this purpose special societies and committees might be formed for the purpose of studying the problem and furthering the efforts of the various health bodies, as has so successfully been done in the case of tuberculosis.

DISCUSSION.

Surgeon-General Sternberg, Washington, D. C., stated that he made a good many experiments as long ago as the winter of 1880, when he first discovered this micrococcus of pneumonia, and he found that it was very pathogenic for rabbits. He went to Philadelphia during that winter for the special purpose of finding out whether this micro-organism was to be found in the mouths of other healthy individuals or whether it was peculiar to himself. He made numerous experiments with the saliva of students in Philadelphia and in Baltimore. The organism was found in a considerable proportion of the cases examined, and there seemed to be quite a difference regarding its virulence as obtained from different individuals. Subsequent observations made in Germany and in this country have shown that it is a widely distributed organism quite as common as the streptococcus pyogenes and other pyogenic micrococci. All these pathogenic bacteria lose their virulence when they lead a saprophytic life for some time. As the pneumococcus is found in the mouths of healthy individuals it must be considered a saprophyte. The pneumococcus found in the sputum of pneumonia patients, as a rule, is more virulent than when found in the mouths of persons who have not suffered from pneumonia. Dr. Sternberg is a little in doubt as to the ability of bacteriologists to say positively that they find the micrococcus of pneumonia in smear preparations. There are other organisms which resemble it so closely morphologically that he could hardly say that he had it unless he had found it in cultures or had obtained it from inoculations of susceptible animals. Referring to the danger of persons carrying this micrococcus in the salivary secretions, Dr. Sternberg stated that he had made frequent inoculations in rabbits with fatal results, showing that he carried this micro-organism in a virulent form in his salivary secretions. It is evident that something more than the micrococcus is necessary in order to induce the disease—a lowered vitality from insufficient nutrition, loss of blood, overwork, alcoholism, insanitary surroundings, etc. Dr. Sternberg considers that the prevention of pneumonia by disinfection is a difficult thing to carry out on a large scale when it is considered how widely the pneumococcus is distributed. Prophylaxis must depend largely on combating those causes which make the individual susceptible and Dr. Sternberg considered that the micrococci in the sputum of pneumonia patients should always be destroyed, but he doubts whether it is practical to destroy the micrococcus in the mouths of healthy individuals, or of those convalescent from pneumonia as a general measure of prophylaxis.

Dr. George M. Kober, Washington, D. C., said that he thinks that sufficient importance has not been given to the predisposing causes of pneumonia. The exciting causes have been pointed out by the preceding speakers. The increased consumption of alcohol in the United States is one of the most important predisposing factors. Students of the United States census statistics will observe that while the general death rate has decreased there has been a positive increase in all diseases that are believed to be caused, or at least influenced, by the habitual and undue consumption of alcohol. It is also a fact that the national drink bill has increased from year to year, and that the amount of liquor consumed per capita is simply enormous. Dr. Kober thinks that there are statistics indicating that the consumption has increased, so that the amount now consumed is about eighteen gallons per year per capita in the United States. At all events the general statistics clearly point to an increased consumption of alcohol, and he believes that it is not only a question of alcohol, but a question of the purity of the alcohol. The heavier alcohols are toxic and affect the tissues of the body, lowering the vitality to a great extent, first destroying the moral, intellectual and physical sensibilities. One of the most common effects is, perhaps, an impure blood supply and degenerative changes, because alcohol, apart from increasing connective tissue, favors the conversion of albuminoid tissues into fats, and, therefore, there is an increase of chronic affections of the kidneys, cirrhosis, hepatic diseases, heart disease and all other diseases caused by alcoholism. The vital statistics of 1900 give an increased death rate from these diseases, and Dr. Kober believes that the secret, after all, lies in the increased consumption of alcohol in the United States, and possibly in a general tendency to adulteration of liquors. While Washington is exempt from an increase of pneumonia, it is, perhaps, due to the fact that it has a large negro population, and there seems to be among them a racial distaste for alcoholic liquors; at all events, the negro is not a drunkard. The ratio of diseases believed to be caused by alcohol among the negro in Washington is infinitely less than among the whites, and yet in all other diseases the death rate among the negroes is very much higher than among the whites. They seldom have a death from cirrhosis or from arteriosclerosis. Indeed, all of those diseases that are influenced by alcohol are scarce among the negroes, and yet their general death rate is far in excess in all other diseases.

Dr. John S. Fulton, Baltimore, said that if it is true that pneumonia has increased, which he is inclined to doubt, it would be very interesting to discover the cause, and it is necessary to learn first what parts of the population have suffered the increased mortality; for the mortality has not been equally distributed either according to age or locality. The particular point of interest to him at the present time concerns the exceptions, and especially the one to which Dr. Kober has alluded, the District of Columbia. Dr. Fulton believes that the residents of the District of Columbia have overlooked one fact which may explain their exemption from an apparent rise of pneumonia rather better than to attribute it to the non-use of alcohol by the negroes. Very likely the increasing use of alcohol is in part responsible for the fact that pneumonia is not diminishing as rapidly as it should at some periods of life, if it be true that the per capita consumption of alcoholic beverages is increasing. He has no doubt that between the ages of 15 and 60 the mortality in pneumonia has been decreasing, and here, if anywhere, the influence of alcohol should appear. The age distribution in the District of Columbia, to his mind, explains the apparent exemption of the district from the increased death rate of pneumonia. He is not sure that there has not been a rise in the District of Columbia in the mortality from pneumonia at certain periods of life. The population in the district lacks those elements of population which contribute to the increase of pneumonia. There are fewer people in Washington under the age of 15 years than in any other part of the United States save only the very newest settlements. Above the age of 60, also, Washington has a relatively small population, while between the ages of 15 and 60 the population is proportionately large. Political conditions dominate the age distribution of the population of the District. It has not and never will have an age distribution comparable with any other urban population. Washington will always have a relatively excessive population in the active period of life. It has also a very considerable excess of females between 20 and 40. Pneumonia at the most important period of life appears to be diminishing, and Washington has precisely the elements of population which enable her to profit by this decline. If the mortality of the District could be equated so as to be comparable with that of such cities as New York, Chicago, Richmond and Baltimore, the true state of affairs would not be found just such as the raw figures indicate. It might appear that Washington has had an increased mortality from pneumonia at a certain period of life, namely, below the age of 5. If pneumonia has really increased, Dr. Fulton's opinion is that the increase has fallen on very early life.

Dr. E. F. Wells said that in presenting this paper he intentionally allowed every mooted question, as he thought, to remain out of the paper. The basis of the belief, for example, that the pneumococcus is the cause of pneumonia, the bearing which different strains of pneumonia have on the characteristics of the disease, the possibility of infinitely increasing or decreasing the virulency of each of these individual strains, the connection between the organism which Surgeon-General Sternberg found in his own mouth, and in the mouths of others, and that of the organism found in pneumonia, and the evidence on which we believe one to be the same as the other, he entirely omitted, and intentionally, because he did not wish to take up time. He desired to present as clearly as possible certain facts which he believes have a bearing on the propagation and increasing prevalence of pneumonia, and to offer some suggestions by which it might probably be diminished. In another section he presented some facts along these lines, which, however, are well known, that not only are the pneumococcus and other pathogenic organisms distributed by means of the sputum from the throat and nose of men and women, but in a more insidious manner, by coughing and sneezing, and throwing a minute number of particles into the air, with a possible and probable bearing on the dissemination of this organism and the increasing prevalence of pneumonia. Dr. Wells said that he feels fairly sure of the ground on which he stands, and will continue his efforts to find a public ready for reasonable and available methods for the prophylaxis of pneumonia.

THE RELATION OF THE INTERNAL SECRETIONS TO EPILEPSY, PUERPERAL ECLAMPSIA AND KINDRED DISORDERS.*

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A suggestive coincidence bearing directly on the disorders referred to in this paper, epilepsy, puerperal septicemia, tetanus and hydrophobia, is that several investigators have been led to conclude by experiments, in which each organ was studied individually, that the adrenals, the pituitary body and thyroid not only influence metabolism, but that they are also concerned with the destruction of toxic waste-products. Thus, in 1891, Abelous and Langlois[1] advanced the view that the function of the adrenals was to "neutralize or destroy toxic substances produced or elaborated during chemical interchanges, and particularly those resulting from muscular work." In 1894 Lloyd Andriezen[2] concluded that "the pituitary gland exercises a trophic action on the nerve tissues, which, in more definite terms, means enabling them, *a*, to take up and assimilate oxygen from the blood stream, and, *b*, to destroy and render innocuous the waste-products of metabolism." As to the thyroid, it may be said to have been connected with both these processes almost since any function was ascribed to this gland. "According to one hypothesis," says Howell,[3] "the function of the secretion is antitoxic. In some way it antagonizes toxic substances supposed to be formed in the body in the course of normal metabolism."

The interpretation of the functions of these three organs which I submitted last year,[4] merges all these hypotheses into a coherent whole; it explains, also, the manner in which metabolism is sustained by all three organs simultaneously, and how the toxic waste products are destroyed. When we consider the vast array of facts on record attesting to a close relationship between these toxic wastes and the diseases in question, it can not but appear that the interpretation referred to may serve to throw some light on the pathogenesis of these diseases, and, perhaps, open new lines of thought in the direction of their treatment.

Since my views were published considerable personal work and new facts contributed by experimenters have only served to strengthen the position then taken as to the functional relationship between the adrenals, the pituitary body and the thyroid. To illustrate the connection between the interial secretions and the diseases mentioned, it is necessary to briefly review the evidence attesting the existence of what I have termed the "adrenal system" as it appears enriched by these new facts.

The marked blood pressure raising power of adrenal extractives and their action on the heart are well known. That the secretion of the adrenals produces identical effects has been established experimentally.

Gottschau,[5] Stilling,[6] Manasse[7] and Auld[8] observed that hyaline masses were secreted by rows of cells in the medullary canal of the organ, and that pressure on the latter caused these masses to pass into the blood vessels. Pfaundler[9] discovered similar masses in the latter and in the suprarenal vein where it opens into the vena cava. Cybulski, Szymonowicz[10] and Langlois[11] then ascertained that blood drawn from the suprarenal veins produced effects similar to those that follow injections of adrenal extracts, and Biedl[12] found that, while blood taken from other veins produced no effect when injected intravenously, blood taken from the adrenal veins used in the same way produced the characteristic effects of adrenal extracts, i. e., slowing of the pulse followed by a rise of blood pressure.

How is the functional activity of the adrenals increased? To ascertain the identity of their secretory nerves, Biedl tied the vena cava below the adrenal veins, inserted a small canula above the latter, and registered the number of drops of blood that escaped from it. On dividing the splanchnic and stimulating its peripheral end, the number of drops increased, but only after from seven to ten seconds, then gradually to from three to five times the normal number. The increased flow continued from ten to twenty seconds after stimulation had ceased. Stimulation produced no effect when the suprarenal nerves were cut. This showed that the splanchnic contained nerves which increased the blood flow through the adrenals—as does the chorda tympani in the submaxillary gland—but did not disclose the identity of the secretory nerves. This was accomplished by Dreyer[13] of Johns Hopkins. He ligated the adrenal vein so as to secure, through a canula, only blood derived from the gland. In eight experiments a given bulk of adrenal blood taken during stimulation of the splanchnic produced decidedly greater effect than the same blood before stimulation. The greater splanchnic was thus shown to contain fibers which, on excitation, increase the functional activity of the adrenals.

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Abelous and Langlois: Arch. de Physiol. norm. et Path., 1891.

[2] Andriezen: Brit. Med. Jour., Jan. 13, 1894.

[3] Howell: Trans. Cong. Amer. Phys. and Surgs., vol. iv, p. 70, 1897.

[4] Sajous: Internal Secretions and the Principles of Medicine, vol. i, Philadelphia, 1903.

[5] Gottschau: Archiv f. Anatomie u. Physiol., 1883.

[6] Stilling: Archiv f. path. Anat., vol. clx, p. 324, 1887.

[7] Manasse: Virchow's Archiv f. Path. u. Physiol., vol. cxxxv, p. 263, 1894.

[8] Auld: Brit. Med. Jour., May 4, 1894.

[9] Pfaundler: Sitzung.-Ber. d. k. Akad. d. Wissensch.-mathem., vol. cl, p. 3, 1892.

[10] Cybulski and Szymonowicz: *Gazeta Lekarska*, March 25, 1895, and Archiv f. die gesammte Physiol., vol. lxiv, Nos. 3 and 4, p. 97, 1896.

[11] Langlois: Revue Scientifique, p. 303, 1897.

[12] Biedl: Archiv f. d. gesammte Physiol., vol. lxvii, Nos. 9 and 10, p. 443, 1897.

Biedl also tried to prove experimentally the presence of vasoconstrictor nerves in the adrenals. Stimulation of the (cut) splanchnic, vagus and of the suprarenal nerves failed to show the least constriction; asphyxia, which causes marked vasoconstriction in the intestines, also failed to cause it in the adrenals. He then exposed and divided all the spinal roots from the third thoracic to the third lumbar, and stimulated both their anterior and posterior segments "with a strong induction current." No vasoconstriction occurred in the adrenals, though the usual effects were noted elsewhere, and the rapidity of the blood flow from the adrenal veins was never increased.

This experiment was repeated three times, and always gave similar results. It shows not only that the adrenals are not supplied with vasomotor nerves, but also that the secretory nerves to the adrenals do not originate in the spinal cord up to the third thoracic.

Again, if the adrenals' secretory fibers are present in the greater splanchnic, which arises from the sixth ganglion of the sympathetic cord, some splanchnic fibers —those to the adrenals—must ascend in the sympathetic cord at least to the level of the second thoracic. Quain[14] states that some fibers of the splanchnic's higher roots "may be traced upward in the sympathetic cord as far as the first or second thoracic ganglia." Gray[15] gives the same limits; Curveilhier[16] says that these upper filaments "are merely in contact with the sympathetic," a statement which obviously suggests that they constitute an autonomous path.

Stimulation of the sympathetic cord alone above the origin of the splanchnic nerve, i. e., up to the first thoracic ganglion, increases the functional activity of the adrenals.

We have seen that when Biedl stimulated the splanchnic the functional activity of the adrenals increased only after from seven to ten seconds had elapsed, and that it continued from ten to twenty seconds after the excitation ceased. The intestines react in a similar way. If "a galvanic current be passed through the splanchnic nerve," says Brubaker,[17] "no instantaneous effect is noticed, as in the case of the cerebrospinal nerves, but in the course of a few seconds a slow, progressive contraction of the muscular coat of the intestine is established, which continues some time after the irritation is removed." If this is due to hypersecretion of the adrenals, the intestines are thus subjected to two experimental vasoconstricting influences: the adrenal secretion and their own vasoconstrictor nerves. Intestinal "inhibition" affords evidence of this dual action. Schiff, Ludwig and Kupffner, Bechterew and Mislawsky[18] have observed both a motor effect, i. e., increased peristalsis sometimes, and inhibition at others. Bunch[19] has given graphic records of intestinal movements in which stimulation of the splanchnics caused in some animals augmentation, in others inhibition of the intestinal tone." Starling[20] says in this connection that Jacobi[21] found that "section of the nerves running from the suprarenals to the solar plexus annuls the inhibitory action of the splanchnics (on the intestines) without affecting their vasoconstrictor effects." This plainly shows that when the adrenals are no longer stimulated through section of their secretory nerves the constrictor (experimental) effects caused by the vasomotor nerves continue alone.

The same dual action occurs in all other organs supplied with vasomotor nerves. In the liver, for instance, two forms of experimental vasoconstriction are discernible; one due to the true vasoconstrictors, which nerves, as shown by François-Franck and Hallion[22] and confirmed by others, leave the spinal cord from the sixth thoracic to the second lumbar, inclusive; the other due to stimulation of the sympathetic cord above the sixth thoracic. The above-named physiologists found that stimulation of the sympathetic chain where, they state, "it has not as yet received from the spinal cord the first hepatic vasoconstrictor rami," caused "a marked rise of aortic pressure." They then divided the rami containing all the hepatic vasomotor nerves, thus isolating the sympathetic chain, and stimulated the latter above the origin of the upper root of the splanchnic. This provoked, as stated by them, and as shown by their tracings, "the maximum vasomotor effect," while division of their upper root was followed by "marked reduction of the vasoconstrictor effect." The upper root referred to, however, being the identical one which, we have seen, anatomists trace up to the first thoracic ganglion, similar effects should be obtained higher up in the sympathetic chain.

Referring to experiments recorded by Pavy, Cyon and Aladoff, and François-Franck, some twenty years before. François-Franck and Hallion remark that they had "led to the supposition that the hepatic vasomotor nerves passed down to the loop of Vieussens by the cervical sympathetic cord, and thence to the thoracic chain through the stellate inferior cervical ganglion." Unable, of course, to account for their results, they ascribed them to "reflex action" or to some unexplained "indirect influence."

Still, the loop of Vieussens, to which these physiologists refer, forms part of the cervical sympathetic, and lies above, therefore, the upper limit of the splanchnic fibers, the first thoracic. How account for the effects noted?

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[13] Dreyer: American Journal of Physiology, vol. ii, p. 203, 1899.

[14] Quain: Anatomy, 7th ed., vol. ii.

[15] Gray: Anatomy, Philadelphia and New York, 1901.

[16] Cruveilhier: Anatomy, American ed., New York, 1844.

[17] Brubaker: Compend of Physiology, Philadelphia, 1900.

[18] Schiff, Ludwig and Kupffner, Bechterew and Mislawsky: quoted by L. H. Starling in article on "Mechanism of the Digestive Tract," in Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.

[19] Bunch: Quoted in E. H. Starling's article on "Mechanism of the Digestive Tract," in Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.

[20] Starling: "Mechanism of the Digestive Tract," Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.

[21] Jacobi: Archiv f. exper. Path. u. Pharm., vol. xxix, p. 171, 1892.

[22] François-Franck and Hallion: Arch. de Physiol. norm. et Path., vol. viii, No. 5, p. 923, 1896.

In 1859 Pavy[23] found that "division, on both sides of the neck, of the ascending branches of the superior thoracic ganglion" in the vertebral canal caused "an intensely marked diabetes." Francois-Franck and Hallion refer to these branches collectively as the vertebral nerve, composed of the rami of the sixth, seventh and eighth spinal nerves, and the one which on stimulation caused hepatic vasoconstriction. Glycosuria is now generally attributed to a too rapid conversion of the liver glycogen into sugar, i. e., to excessive functional activity. Even Bernard's puncture is ascribed to localized irritation.

This interpretation is sustained by the fact that adrenal extract, as shown by Blum,[24] Croftan[25] and others, cause glycosuria. Herter,[26] for example, found that intravenous injections of adrenalin were followed by a large excretion of sugar, and states in this connection that "a rise of blood pressure is an accompaniment of glycosuria." Stimulation of the adrenals can alone, therefore, bring about glycosuria and its corollary a rise of blood pressure. Moreover, Claude Bernard found that experimental diabetes was prevented by division of the splanchnic. It follows, therefore, that division of the vertebral nerve should prevent diabetes if it were the secretory nerve of the adrenals. Indeed, the vertebral nerve is what Pavy termed it from the start, namely, a sympathetic nerve—an important one, as we will see, since it terminates in the organ from which the nerve to the adrenals originates.

Cyon and Aladoff[27] found that lesions or removal of the upper thoracic or inferior cervical ganglia, or division of the loop of Vieussens, also caused diabetes. All these contain, as is well known, sympathetic fibers which ascend to the superior cervical ganglion. Again, Pavy states that "of all the operations on the sympathetic of the dog that have as yet been performed, removal of the superior cervical ganglion the most rapidly and strongly produces diabetes." Hence, some of the ascending fibers referred to must transmit their vasomotor impulses to some cranial organ which, when passively congested and overactive through section of these fibers, can in turn stimulate the bulbar centers and produce glycosuria. That we are dealing with a vasomotor path is further emphasized by the "temporary nature" of the diabetes witnessed by Pavy.

Which is the cerebral organ thus influenced? Langley[28] refers to three bundles of fibers given off by the superior cervical ganglion, the distribution of which is uncertain. Two of these pass toward the eye muscles; of the third he says: "there is that which accompanies the internal carotid; it would naturally be supposed to convey vasomotor fibers to the vessels of the brain, but this view, as we have said, is contested." The carotid plexus is connected with the pituitary body. So distinct is this connection, and so direct is the anatomic relationship between this organ and the sympathetic chain, that Bourquery, a French anatomist, looked on it some forty years ago as the general center of the sympathetic system. Hirschfeld[29] says in this connection: "I am all the more inclined to adopt this view, since I have always seen in my dissections a great number of nerve fibers extend from the superior cervical ganglia to this organ." Among the anatomists who have also found these fibers are Pourfour du Petit, Fontana, Bok, Sappey, Hirzel, Warrentropp and Bazin, and among the more modern works which refer to them are those of Testut,[30] Morris[31] and Gerrish.[32] On the other hand, Berkley,[33] after an exhaustive histologic study of the nervous supply of the pituitary body, says, referring to its anterior lobe: "All nerves belonging to it appear to be derived from branches of the carotid sympathetic plexus."

To control this evidence, it should be possible to show that overactivity of the pituitary body, hyperemia of the bulbar center caused by Bernard's puncture and injections of adrenal extractives can cause diabetes. We have seen that Bernard prevented experimental glycosuria by dividing the splanchnics; Loeb[34] states that glycosuria does not occur during the post-operative life of animals deprived of the pituitary, and that it is a frequent symptom of pituitary growths. Again, Berkley, as stated, traced the fibers of the carotid plexus to the anterior lobe. Sternberg[35] found that this lobe was chiefly involved in acromegaly. Tamburini,[36] in a study of acromegaly which included twenty-four autopsies, lays stress on the fact that exaggeration of the functions of the pituitary attends the first stage. The excessive and often ravenous appetite, the thirst, polyuria, the full and hard pulse, cutaneous hyperesthesia, abnormal superficial heat, etc., and the typical muscular and osseous hypernutrition, all indicate excessive functional activity—the underlying factor, we have seen, of glycosuria. Hinsdale[37] mentions fourteen clinicians who have observed glycosuria in this disease.

Again, if overactivity of the pituitary body provokes glycosuria by stimulating the adrenals, we should obtain, on stimulating the pituitary, the characteristic symptoms of overactivity of the adrenals. De Cyon[38] observed, in the course of experiments in a large number of animals (in support of his theory that the pituitary body serves through the thyroid gland to regulate the cerebral blood pressure) that "any, even slight pressure on the pituitary body immediately gives rise to a sudden variation of the blood pressure, and to a marked reduction of the beats of the heart, the strength of which is at the same time considerably increased." He also found that "electrical stimulation of the pituitary body, even with extremely weak currents, produces exactly the same phenomena as mechanical pressure, but in a much more intense manner."

These experiments have been repeated recently by F. Masay and amplified in such a manner as to distinctly locate in the pituitary the origin of the phenomena witnessed. His investigations showed that mechanical and electrical excitation of the pituitary body caused a marked rise of blood pressure—from 81 mm. Hg to 200.

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[23] Pavy: Proceedings Royal Soc. of London, vol. x, p. 27, 1860.

[24] Blum: Deutsch. Arch. f. klin. Med., vol. lxxi, Nos. 2-3, p. 146, 1901.

[25] Croftan: Amer. Med., Jan. 18, 1902.

[26] Herter: Amer. Med., May 10, 1902.

[27] Cyon and Aladoff: Bulletin de l'Acad. des Sciences de St. Pétersbourg, vol. vii, 1871.

[28] Langley: Sympathetic and Other Related Systems of Nerves, in Schäfer's Text-book of Physiol., vol. ii, p. 616, Edinburgh, London, New York, 1900.

[29] Hirschfeld: Système Nerveux et Organes des Sens de l'Homme, Paris, 1866.

[30] Testut: Traité d'Anatomie Humaine, 3d ed., vol. ii, Paris, 1896.

[31] Morris: Treatise of Anatomy, Philadelphia, 1893.

[32] Gerrish: Text-book of Anatomy, Philadelphia and New York, 1899.

[33] Berkley: Brain, Winter, p. 515, 1894.

[34] Loeb: Centralblatt f. innere Med., vol. xix, p. 892, 1898.

[35] Sternberg: Acromegaly, Nothnagel's Encyklopedia, p. 30.

[36] Tamburini: Revista Sperimentale de Freniatria, p. 559, 1894, and p. 414, 1895.

[37] Hinsdale: Acromegaly, p. 20, Detroit, 1898.

[38] De Cyon: Arch. de Physiol. norm. et Path., vol. x, No. 3, p. 618, 1898.

in one instance—and that this effect was not prevented by section of both vagi. He also found that very soon after excitation the power of the heart became "greater than normal." We thus have a marked rise of blood pressure followed by an increase of cardiac power—precisely the physiologic characteristics not only of adrenal extractives, but also of blood taken from the suprarenal veins.

How does the pituitary body transmit its impulses to the adrenals?

Last year[4] I advanced the view that the anterior pituitary body was a sensory organ. This has been fully sustained by recent researches. Paremeschko[39] described a transverse slit or cavity between the glandular elements and the partition, which cavity communicated with the infundibulum, and was lined throughout with ciliated epithelium. Cadiat[40] observed a similar cavity communicating above with the tuber cinereum and lined with pavement epithelium. Müller[41] states that the internal wall of this slit, which forms part of the partition, is composed of a network of lymphatics lined with ciliated epithelium. Recently this region of the anterior lobe has been studied by the Golgi method by Gentès,[42] who found that this lobe was in reality composed of two parts, the glandular and the neural, the latter forming the inner wall of the cavity described by Paremeschko, Cadiat and Müller, which cavity he found to exist in the animals used, i. e., the cat and dog. Ordinary methods of staining suggested that this structure was composed of several layers of cylindrical stratified epithelium, but the Golgi method showed in addition that the interstices between these elements were penetrated throughout by sensory cells, each cell sending broad processes to the free surface and into the depths of the epithelial layer. The latter recalled "precisely that of the olfactory area of the nasal membrane."

Lloyd Andriezen,[2] after tracing the phylogenetic history of the pituitary body in all vertebrates, concluded that "the posterior lobe represents little beyond a neuroglia remnant of what was once a functional portion of the nerve tissue in ancestral vertebrata." My own researches having suggested that neuroglia fibers were not insignificant functionally as now believed, and that they were neural capillaries containing blood-plasma, under the dependence of neuroglia "cells," the posterior pituitary no longer appeared to me as a vestigial organ.

Berkley,[33] after examining about 2,500 slides of this organ, found different types of cells, and expressed surprise to find therein "beautiful specimens of several types of ependymal neuroglia cells extending from all portions of the middle and inferior regions of the cavity of the third ventricle." Kölliker[43] also observed such elements in human pituitaries. Even its outer layer was found by Luschka[44] and Müller,[45] who studied the pituitary body from myxine to man, and others, to be composed of gray substance recalling that of the cortex cerebri and similar to that found in the infundibulum.

As to the relations of the pituitary body with the base of the brain, i. e., the third ventricle, Ramon y Cajal[46] found that the posterior lobe was filled with a close and thick plexus of fine varicose fibers which ramify among the nerve cells. Longitudinal sections showed that these fibers were "terminal arborizations of a bundle which passes downward in the infundibulum." Some fibers were also observed to pass upward from the organ by way of its epithelial walls and to terminate in a mass of gray matter located behind the optic chiasm. Cajal also found that this group of cells (the giant-celled supra-infundibular nucleus) also sent some of their axons into the anterior lobe, terminals of which penetrated between the epithelial cells. This agrees with the description of older anatomists and histologists (Sappey, Luschka, Müller, etc.). Both the anterior and posterior lobes thus communicate through the infundibulum with the central gray substance, a region which Foster terms "a bed for the development of the nuclei of the cranial nerves and a continuation of the spinal gray matter."

The great nucleus above the optic chiasm and the infundibular structures is not only connected with the pituitary body, but also with: 1, the structures anterior to it; 2, the gray walls of the third ventricle on each side of it; and 3, the tuber cinereum or floor of this ventricle (of which the infundibulum forms part), which extends up to the mammillary bodies, two small organs immediately behind the pituitary body. Van Gehuchten,[47] for instance, recently found, in teleosts, that cells in the anterior lobe, which is composed mainly of the olfactory and visual organs, sent some of their "neuraxons" by way of the anterior basal bundle to the anterior portion of the infundibulum where they terminated, while neurons whose cell-bodies were in the infundibular structures sent theirs to the anterior lobe. He characterizes these nerves, respectively, as "motor" and "sensory." This coincides with results obtained in the monkeys by W. Spencer.[48] He slowed and arrested respiration by stimulating an area adjoining the olfactory tract in the orbital surface of the frontal area. The fibers traced by him seem to form part, he thought, of the olfactory tract bundle which passes over the optic chiasm around the infundibulum. Munk[49] has observed a close connection between the frontal respiratory area and the olfactory paths, and on exciting it, could arrest respiration, deepen the thoracic inspiration, and even cause diaphragmatic tetanus. Cyon also caused tetanic spasm by stimulating the pituitary body.

Important in this connection is the fact that anterior connections with the central gray matter exist which are independent of the hemispheres, including the striated bodies and optic thalami. Edinger[50] emphasizes the fact that the prominent olfactory tract runs backward to the level of the mamillary bodies, and "must pass through the most ventral regions of the corpus striatum; but it receives no fibers from this, as has been supposed." In fact, he states that in Goltz's dog—which lived eighteen months after removal of both hemispheres and in which the optic thalami were partially destroyed—"the great tract of fibers from the olfactory field could be traced backward very clearly and distinctly to the corpus mamillare." So are all the structures of the central gray matter independent of the hemispheres. Von Monakow found that removal of the cortex did not cause primary degeneration of the tuber cinereum which contains the infundibulum, or even of the gray substance overlying the optic thalami.

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[39] Paremeschko: Virchow's Archiv f. path. Anat. u. Physiol., vol. xxxviii, p. 429, 1867.

[40] Cadiat: Anatomie Générale.

[41] Müller: Jenaische Zeitschrift, vol. vi, 1891.

[42] Gentès: Comptes-rend. de la Soc. de Biol., vol. lv, p. 100, 1903.

[43] Kölliker: Handb. der Gewebelehre d. Menschen., p. 605, Leipzig, 1896.

[44] Luschka: Der Hirnanhang und die Schildrüse des Menschens, 1860.

[45] Müller: Jenaische Zeitschrift, vol. vii, 1891.

[46] Ramon y Cajal: Anales de la soc. esp. d'hist. nat., 2d series, vol. iii (xxiii), Madrid, pp. 214-15, 1894.

[47] Van Gehuchten: Anatomie du Système Nerveux, vol. ii, Louvain, 1900.

[48] W. Spencer: Philosophical Trans. of the Royal Soc. of London, p. 605, 1894.

[49] Munk: Ueber die Functionen der Grosshirnrinde, Berlin, 1890.

[50] Edinger: Anatomy of the Central Nervous System in Man and in Vertebrates in General, Transl. by W. S. Hall, Philadelphia, 1899.

This entails the need of cellular connections in the various regions of the third ventricle, including its walls, to receive impulses from various directions, irrespective of the hemispheres. Edinger found that in reptiles, amphibians and birds, the nucleus of the infundibulum extends around the walls of the ventricle, and he considers it as the probable source of the "supra-infundibular decussation formed of large fibers, which," he says, "descend to it from the gray matter of the ventricular walls." Again, Van Gehuchten found that while the bipolar cells (which, as is well known, are also present under the rods and cones of the retina, the olfactory membrane and other sensory organs) in the infundibular tissues, sent a tuft of dendrites to the surface of the latter, another tuft of "short irregular extensions terminate on the free surface of the ventricular cavity."

The central gray substance is thus supplied with direct paths from sensory organs and nervous extensions capable of forming links or synapses with others, all so arranged as to concentrate their impulses in the infundibular walls, and thence, judging from the cellular connections, into the pituitary body.

The spinal cord sensory impulses are no exception in this connection. A pigeon deprived of its hemispheres feels a fly that happens to alight on its head, and shakes it off; Goltz's dog, in which, beside the hemispheres, the optic thalami were functionally destroyed, refused food made bitter with quinin; Vulpian has shown that when the hemispheres, optic thalami, striated bodies, the corpora quadrigemina and the cerebellum were removed, animals still cry out when a foot or an exposed nerve is strongly pinched. The central gray axis alone remained here to receive impulses through at least a portion of the fillet, which, according to Foster,[51] is "a probable path of sensations of one kind or another from the body at large."

Two divisions of the fillet are so disposed anatomically as to reach the central gray substance, the fillet layer and the mesial fillet.

Edinger[50] states that the greater part of the former can be traced up from the nuclei of the sensory nerves and the posterior columns. "Meynert," adds this anatomist, "first demonstrated that in it we have a segment of the sensory tract. Embryology and comparative anatomy equally substantiate this position." This layer, also termed the "deep gray-white layer," after decussating in the medulla, passes upward in the gray substance of the aqueduct of Sylvius to the threshhold of the third ventricle. The other or mesial fillet also reaches up to this region; while some of its fibers go to the optic thalami, others terminate in the subthalmic region, i. e., beneath the walls of the third ventricle, which, we have seen, contain dendritic tufts of infundibular nerves. Now the fillet, from which both these tracts originate, not only contains, as emphasized by Edinger, fibers from all the sensory bulbar nuclei, but degeneration experiments have shown, he says, that "it may be separated into its various bundles for the different nerves, trigeminus, acusticus," etc. Stewart[52] refers to the mesial fillet as being enlarged in the medulla "by the accession of fibers from the sensory nuclei of the cranial nerves." In other words, this division of the fillet contains fibers of all sensory nerves, the vagus, glossopharyngeus, trigeminus, etc., and transmits them to the base of the brain.

The central gray substance *per se* can thus receive sensory impulses from all parts of the organism. It can likewise transmit motor impulses to all organs.

Van Gehuchten traced motor fibers to the anterior organs of the head. The motor paths to the spinal cord are clearly defined through the posterior longitudinal bundle, which passes down to the anterior columns of the cord. It is only traced usually to the motor oculi nucleus. Edinger says in this connection: "The posterior longitudinal fascicle sends its most anterior fibers much farther forward than to the nucleus of the oculomotorius. In the central gray matter, just anterior to the beginning of the aqueduct, is a collection of large ganglion cells, from which a number of such fibers (referring to the fibers destined for other cranial nerves) arise—the nucleus fasciculi longitudinalis posterioris.[53] This nucleus is demonstrable in all vertebrates. In mammals it lies in those places which ventrally intersect the posterior part of the corpus mamillare." Moreover, he found that in the human fetus, as well as in the lower vertebrates, it received fibers "from all motor nuclei throughout its long course." Finally, the vast functional importance of this motor path is emphasized by the words: "Inasmuch as it is found in all vertebrates, and always from the interbrain to the region of the anterior columns of the spinal cord, it must be recognized as one of the fundamental features of the brain."

While the central gray substance is evidently endowed with an autonomous mechanism through which it can receive all impressions from the periphery and transmit motor stimuli in every direction, what is the influence of the pituitary body in this connection? We know that it was by passing a current from the nasal cavities to the bulb that brothers Weber[54] arrested the heart. Cyon,[55] while studying experimentally the influence of a supposed secretion of the pituitary body in the cerebral blood pressure, found that inhibitory slowing of the heart could no longer be obtained after extirpation of the pituitary body. Even the reflex phenomena, sneezing, coughing, lachrymation, etc., provoked by irritation of the nasal mucous membrane, could no longer be obtained, irritants of the most active kind, ammonia, for instance, having lost all influence. "All the nerves connected with the nasal mucous membrane capable of causing reflex phenomena," says this physiologist, "that is to say, the end-organs of the trigeminus, olfactory, optic, auditory and glosso-pharyngeus, had lost their influence after the pituitary body had been removed."

When we realize how many different sensory and motor paths are involved in the production of the reflex phenomena referred to, and also that a high mammal deprived of its hemispheres will live months, whereas removal of the pituitary body in an adult animal inevitably causes death, the commanding importance of this organ can not but assert itself. Indeed, I have advanced the view that we have in this organ the governing center of the nervous system, meaning thereby the co-ordination center of the vasomotor and cranial nerves. It is when we observe the perfection with which all purely physical functions are performed in the absence of the hemispheres that the need of such an organ asserts itself, and that the identity of the pituitary body as such becomes apparent.

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[51] Foster: Text-book of Physiology, 6th Amer. ed., Philadelphia, 1895.

[52] Stewart: Manual of Physiology, 4th ed., Philadelphia and London, 1900.

[53] An error in the original text causes the latter word to appear as "superioris"; the description and all illustrations to which the author alludes, however, refer to the *posterior* bundle. S. (See Figures 179, 43 and 44.)

[54] Weber: Handwörterbuch d. *Physiologie*, vol. ii, 1846.

[55] Cyon: Archiv fur die gesammte Physiologie, vol. lxxi, Nos 7-8, p. 370, 1898, and vol. lxxii, Nos. 9-10, p. 431, 1898.

All this has also served to indicate the path of the secretory nerves to the adrenals.

The vertebral nerve being purely a vasomotor path, it need no longer be considered as a possible secretory nerve to the adrenals. Indeed, François-Franck and Hallion found that section of the five upper thoracic rami communicantes arrested the hepatic vasoconstrictor effects. They justly contend that if the impulses from the upper spinal cord actually passed to the sympathetic chain by way of the vertebral nerve, the vasoconstrictor effects should have persisted notwithstanding division of the thoracic rami.

There is a feature of their experimental result which these physiologists overlooked, however, namely, that if division of these rami, all of which are above the origin of what they rightly consider as the uppermost path (the sixth thoracic) for the true hepatic vasoconstrictors, arrested their constrictor effects, the five severed rami must have controlled these effects. In other words, the functional activity of these vasomotor nerves must have depended on the functional integrity of some organ dominated by the five upper rami. The solution of this problem is easily found, in view of the fact that the portion of the sympathetic chain to which these five rami run is the only portion of this chain in which the nerves traced upward from the adrenals occur alone. It is plain, therefore, that it is by way of these five rami that the impulses, which produced the typical effects of adrenal extractions when the pituitary body was stimulated by Cyon and Masay, were transmitted to the adrenals by way of the sympathetic chain.

What is the nature of the process through which the pituitary body controls the functional activity of the adrenals? I can only recall that I have adduced evidence to show that the secretion of the adrenals, owing to its marked affinity for oxygen, took up this gas from the pulmonary air and became transformed into a compound I termed "adrenoxin." This was found to correspond with the substance which Salkowski[56] Schmiedeberg,[57] and subsequently Jaquet[58] and Abelous and Biarnès,[59] found in the blood, and which they specifically characterized an "oxidizing ferment." It is a constituent of blood serum and of the red corpuscles, and it yields its oxygen to sufficiently potent reducing agents. Its hold on the oxygen is sufficient to present its dispersion and not too great to resist the normal affinity of the tissue with which it comes into contact. The blood plasma laden with adrenoxin can thus circulate in microscopic capillaries, where corpuscles can not reach and sustain metabolism. Methylene-blue stain which, according to Ehrlich, requires oxygen saturation and alkalinity, indicate its presence in all nervous elements, including the nerve cell.

The manner in which the adrenals sustain the functional activity of the vasomotor nerves now suggests itself. The adrenoxin-laden blood plasma sustains the vital process of the vasomotor center, as well as that of the other organs. We have seen that when Cyon and Masay stimulated the pituitary body, the characteristic effects of adrenal secretion or extracts were produced. The blood's adrenoxin acts on it in a similar way, and the effects witnessed are in reality those of overstimulation of the same organ, and the effects evoked point to it as the chief vasomotor center.

Under these conditions the effects of adrenal extracts should coincide with those of the overactive vasomotor nerves. Langley,[60] after an exhaustive experimental study of the physiologic action of adrenal extract, remarks that it "runs parallel with the action of the sympathetic nerves on the blood vessels." He also deems it "noteworthy that the effects produced by suprarenal extract are almost all such as are produced by stimulation of some one or other sympathetic nerve. In many cases," he adds, "the effects produced by the extract and by electrical stimulation of the sympathtic nerve correspond exactly."

Important in this connection also is the fact that it is through some of these rami that the heart is supposed to receive its augmentor nerves, i. e., the three uppermost thoracic. Brown-Séquard,[61] in 1853, emphasized the predominating influence of the venous blood in cardiac dyamism. Oliver and Schäfer[62] and others have demonstrated that intravenous injections of adrenal extract had a powerful physiologic action on all muscles, but particularly on the heart muscle. In my work on the "Internal Secretions," I lay stress on the fact that the heart's contractile power depends to a great extent on the adrenal secretion which enters it by way of the inferior or vena cava, and that the secretion penetrates into the myocardium by way of its Thebesian foramina. This accounts: 1, for the augmentor effects; 2, for a part, at least of the rise of blood pressure which occurs, as is well known, when all the nerves to the heart are cut, and shows that the secretory nerve to the adrenals is a bundle formed of the three upper thoracic spinal nerves, which reach the splanchnic through the upper portion of the sympathetic chain in the thorax.

Biedl, we have seen, only stimulated the spinal nerves up to and including the third thoracic, but as he was trying to ascertain the presence of vasomotor nerves, he doubtless stimulated the third thoracic (which is not usually regarded as belonging to the vasomotor field of the splanchnic) too short a time to obtain secretory effects.

This also alters my own belief that the cervical sympathetic also serves as a link between the pituitary body and the upper end of the sympathetic cord in the thorax.

All this accounts for the fact long ago recorded by von Bezold and Bensen,[63] that section of both splanchnics lowered the blood pressure as much as section of the spinal cord in the cervical region. It also explains why Strehl and Weiss found that, after removing one adrenal, the blood pressure could be lowered by clamping the suprarenal vein of the remaining organ, thus depriving the blood of any adrenal secretion, and that by releasing this vein the blood pressure was soon restored to its previous level.

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[56] Salkowski: Virchow's Archiv f. path. Anat. u. Physiol., vol. cxlvii, No. 1. p. 1, 1897.

[57] Schmiedeberg: Archiv f. exper. Path., vol. xiv. Nos. 4-5, p. 288, and No. 6, p. 379, 1881.

[58] Jaquet: Arch. f. exp. Pathol., vol. xxix, Nos. 5-6, p. 386, 1892.

[59] Abelous and Biarnès: Archives de Physiol., vol. vii, No. 5, p. 195, 1895.

[60] Langley: Journal of Physiology, vol. xxvii, p. 237, 1901.

[61] Brown-Séquard: Exper. Researches Applied to Phys. and Path., p. 104, New York, London and Paris, 1853.

[62] Oliver and Schäfer: Journal of Physiology, vol. xvi, p. 1, 1894, and vol. xvii, p. 9, 1895.

[63] Von Bezold and Bensen: Neue Würzburger Zeitung, 1866; Verh. d. Phys. Med. Gesells., Würzburg, January, 1867.

Another organ closely related functionally with the pituitary body is the thyroid gland.

The secretion of the adrenals, by taking up oxygen in the lungs and carrying this gas to all parts of the organism, becomes the underlying factor not only of the pulmonary respiration, but also of tissue respiration. Last year I advanced the view that the purpose of the thyroid gland was to sustain the functional efficiency of the anterior pituitary body by means of its internal secretion. As such, therefore, this organ becomes itself associated with the general respiratory process. Suggestive, in this connection, is the fact that Andriezen,[64] after a study of the thyroid in lower animals and the results of its extirpation, reached the conclusion (although not aware of the nervous connection between the pituitary and the adrenals and the rôle of the latter in respiratory processes) that the morbid phenomena observed were ascribable to perturbations of the gaseous interchanges in the tissues. That the administration of thyroid extract enhances all oxidation processes of the organism, increasing the proportion of waste products in proportion, is now a familiar fact. The view that a functional—though undefined—relationship between the pituitary body and the thyroid exists, has long been defended by Stieda, Hofmeister, Gley and Andriezen, among others. Removal of the pituitary produces symptoms similar to those caused by extirpation of the thyroid, and the morbid symptoms of extirpation of this organ can be arrested by administering thyroid extract.

Again, as shown by Baumann, Hutchinson, Fränkel, Oswald and others, the active principle of thyroid extractive is an iodin compound. Considerable iodin has also been found in the pituitary body by Schnitzler and Ewald.[65] The presence in the latter organ of hypersensitive structures, and particularly of that recently described by Gentès, in which the end organs typify precisely those of olfactory end organs, adds further evidence to that already submitted by me, showing that it is through its secretion that the thyroid sustains the functional activity of the anterior lobe of the pituitary in which this structure was found.

Summing up the facts adduced, they seem to me to sustain the contention that the pituitary body, the adrenals and the thyroid jointly govern all oxidation processes, and, therefore, the functional efficiency of all organs.

If, as stated, the functions of the pituitary, the adrenals and the thyroid are interdependent—thus constituting what I have termed the "adrenal system"—impairment of the functional integrity of either one of them must morbidly influence that of the others. Overactivity of the thyroid, for example, by surcharging the blood with this organ's internal secretion, will overstimulate the pituitary body and through them the adrenals, thus causing the symptom-complex of general hyperoxidation: exophthalmic goiter. Conversely, lowering of the activity of the thyroid correspondingly lowers all oxidation processes, as instanced by the hypothermia of myxedema, cretinism, etc.

The bearing of these various functions on the convulsive disorders mentioned may now be outlined.

Munk provoked diaphragmatic tetanus when he stimulated the respiratory area adjoining the olfactory organs, the fibers of which traverse the central gray substance, and Cyon caused tetanic spasm on stimulating the pituitary body. Prus,[66] after a very large number of experiments, concluded that the spasmogenic impulses were not transmitted by the pyramidal tracts, but by others which he termed "extrapyramidal" and which passed below, i. e., by way of the midbrain or tegmentum—structures through which, I may add, the motor impulses from the central gray substances pass. Hering has since confirmed these results, and produced epileptic seizures after dividing both upper motor tracts, and it may be said that evidence to this effect is rapidly accumulating. Very recently Nino Samaja[67] showed by electrical stimulation of the region below the cortex, and decortication in newly born and adult animals of various kinds, that while in the higher adult mammals the motor cortical zone could alone evoke clonic convulsions, the lower brain was the source of stimuli which caused tonic spasm; and, furthermore, that while in man clonic convulsions were also of cortical origin, "the seat of tonic convulsions is exclusively basilar."

The predominant rôle with which the central gray axis (which extends from the pituitary body to the end of the spinal cord) is shown to be endowed in the foregoing pages readily accounts for these observations. Indeed, Magnan[68] caused epileptic seizures in guinea-pigs, pups and kittens deprived of their hemispheres. We can not conclude from this, however, that because Cyon caused tetanic spasm by exciting the pituitary body, the seizures in Magnan's animals were due to a similar cause. In the first place, as is well known, irritation of the fourth ventricle will cause convulsions, and, as shown by Brown-Séquard, Maier and others,[69] convulsions caused by various toxics, including strychnin, may include the lower limbs after division of the cord. In fact, Kussmaul and Tenner[70] found that removal of both hemispheres and the central gray substance, including the pituitary body, did not arrest convulsions caused by toxics.

It seems to me that we are dealing with two sources of convulsions: The first, a toxic in the plasma circulating in the nervous elements; the second, excessive activity in the pituitary body, leading to a correspondingly marked oxidation in all organs, including the muscles. The first is certainly pathogenic, while the most that can be said of the second is that it is an exaggerated manifestation of normal functional activity, and, perhaps, protective.

We do not have to go beyond the symptoms that follow extirpation of the organs involved to show that this is true. After removal of the pituitary body the symptoms are, in Schäfer's words: "1, Diminution of the body temperature; 2, anorexia and lassitude; 3, muscular twitchings and tremors developing later into spasms; 4, dyspnea." After removal of the thyroid in the monkey, "the most characteristic symptoms," says the same physiologist, are "muscular tremors passing gradually into clonic spasms, and finally into convulsive attacks

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[64] Andriezen: Soury, Système Nerveux Central, Paris, 1899.
[65] Schnitzler and Ewald: Wiener klin. Woch., July 16, 1898.
[66] Prus: Wiener klin. Woch., vol. xi, No. 38, p. 857, 1898.
[67] Nino Samaja: Revue Méd. de la Suisse Romande, Feb. 20, p. 77, and March 20, p. 173, 1904.
[68] Magnan: Arch. de Physiol. norm. u. Path., vol. v, No. 5, p 115, 1873.
[69] Maier: Rapport de l'Acad. de Vienne, vol. lxiv, 1871.
[70] Kussmaul and Tenner: Jour. de la Physiologie de l'Homme, etc. vol. i, p. 201, 1858.

(tetany); there is also apathy and unsteadiness of gait, and, with the advance of time, the gradual supervention of a cretinic condition, together with a lowering of the body temperature and cutaneous sensibility." As to the adrenals, death occurs very soon after the removal of both organs, but long enough sometimes to indicate the kinship to the effects just outlined, including low respiration, anesthesia and hypothermia. "The animal lies on its side in a state of intense weakness," writes Auld, "is very drowsy, refusing to move, and may have convulsions."

In all three procedures we have diminution of the temperature and other signs of lowered oxygenation, and along with these, convulsions. We are evidently dealing, as a cause of the latter, with the first or pathogenic factor, i. e., a toxic. The identity of this toxic is readily accounted for: the avidity of the tissues for oxygen is such that it practically depletes not only the red corpuscles, but the plasma also, of this gas. Metabolism continuing in the tissues—though at a lower rate, as shown by the lowered temperature, the lassitude, the muscular weakness—waste products accumulate in the blood. Convulsions then appear, but as a terminal sign. Whether the supply of oxygen be reduced by removal of either of the three organs in question, or by withholding the air supply, as in asphyxiation, the one and same cause prevails, in my opinion, i. e., an accumulation of waste products in the blood plasma, including that which circulates within the neurons of the cortex and the central gray axis, and especially in their sensory terminals.

"In some animals, as in most carnivora," says Chittenden,[71] "complete removal of the thyroidal tissue is followed by a rapid development of symptoms indicating a marked irritation of the nervous and muscular systems, as manifested by tetanus, epileptiform convulsions, etc., and terminating in death."

Why do these products accumulate in the blood stream? The answer to this is afforded by the action of thyroid extract on the symptom-complex that thyroidectomy insures. Hoffmeister[72] found iodothyrin cuts short the symptoms that follow removal of the thyroid, including the convulsions. Baumann and Goldmann[73] showed that thyroidectomized dogs do not suffer from tetanic convulsions so long as adequate doses of iodothyrin are administered, and that they recur when the iodothyrin is withdrawn. Since, as emphasized by Hutchinson[74] and many other investigators, all the systemic oxidation processes are increased by the use of thyroid extractives, it is plain that oxidation is the underlying factor which prevents, either directly or indirectly, the accumulation of spasmogenic elements. Magnus Levy[75] and Scholz[76] found that thyroid extract increases the consumption of oxygen and the proportion of carbonic acid excreted. Mendel, Roos, Napier, Ord, Voit[77] and many other physiologic chemists have noted that it increased the excretion of the end-products of metabolism.

But the paramount point to us, therapeutists, is the fact that the convulsions ceased when under the influence of thyroid extract and the oxidation processes were brought to a sufficiently high level. Evidently the blood was purged of its toxic elements, the increased tissue respiration having entailed their conversion into benign eliminable products. In other words, the spasmogenic poison was overcome by the protective element of the organism, a product of its ductless glands. And this applies to any form of convulsion, whether it be due to accumulated waste products or to a specific toxic; whether, in a word, it occur during puerperal septicemia, epilepsy, hydrophobia or tetanus.

Now, what are the present mainstays in the treatment of these disorders? The bromids and chloral hydrate. "On mammals," says H. C. Wood, "the bromid acts very much as on frogs, inducing progressive paralysis, depression of temperature, and death by asphyxia when given in small poisonous doses." Of chloral, the same distinguished therapeutist says: "A most remarkable action of chloral is on the temperature; in this point all observers are in accord with Richardson of London, who has seen the temperature fall 6 F. in a rabbit. . . . Hammerstein has found that the fall of temperature is very rapid, 6 C. in an hour, and that it occurs in animals well wrapped up and laid in a warm place." If the protective, curative element in these dread diseases is hyperoxidation, what may we expect of induced hypo-oxidation? The mortality ratio of rabies, tetanus and puerperal eclampsia, treated on those lines, answers that question. These drugs reduce, it is true, the excitability of the sensory elements, but they aid the accumulation of the spasmogenic toxics by inhibiting the oxidation process through which these are destroyed.

Last year I advocated precisely the opposite course; lines of treatment which increase the functional activity of the adrenal system doing precisely what thyroid extract does after removal of the thyroid. Nicholson[78] has not only found that in puerperal eclampsia the normal enlargement of the thyroid—to which Lange called attention after examining 133 women—which betokens increased functional activity, was not present, but that the nitrogenous metabolism was lowered. He obtained excellent results by the use, with a pure milk, of 7½ grain doses of thyroid extract every three or four hours, and morphin (a drug which in therapeutic doses stimulates the adrenal system) as an adjunct. Now, if the adrenal system is involved in such processes, its general center, the pituitary body, should give evidence of excessive activity. In 1898, L. Comte[79] examined the pituitary body in a number of women who had died during pregnancy and found not only that this organ was hypertrophied in every case, but that the anterior lobe was alone the seat of the hypertrophy. P. E. Launois and P. Mulon[80] recently examined histologically the pituitary of two eclamptic women, each aged about 30, and were brought to conclude by histologic examination that during pregnancy the pituitary body gives evidence of marked overactivity.

This exemplifies, it seems to me, the condition involved in all toxemias attended with convulsions. The increasing tendency to use iodin, mercurial inunctions and other agents which tend powerfully to increase oxidation and general metabolism by enhancing the functional activity of the organism's protective system, seems to me, therefore, to merit encouragement.

The views advanced by me in January, 1903, in this connection have recently received a striking confirmation in England. A. E. Wright,[81] formerly professor of pathology at the Netley School, referred to the presence "in considerable quantities in the blood" of a secretion the source of which he deemed unknown, and of which he thought diphtheria antitoxin was the most familiar example. Believing that, as he says, "all the protective substances" in the cure of disease "were to be regarded as produced by internal secretion," he employed Koch's new tuberculin in various conditions, to induce the appearance in the blood of the "antidotal substances" referred to, and obtained what he terms "extraordinarily good results" in some thirty cases of various kinds. "Patients with tuberculosis recovered," he is quoted as saying, "if they produced enough of the internal secretion to render their bodies uninhabitable by the tubercle bacillus." In the light of my own views, the tuberculin used by Dr. Wright merely did what several of our familiar drugs can do, provided, however, they be considered, not as direct antagonists of the morbid process that may be present, but as agents which, once in the blood, enhance the activity of the body's autoprotective resources, through the most sensitive of its sensory organs, the pituitary body.

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[71] Chittenden: Trans. Cong. Amer. Phys. and Surgs., vol. iv, p. 87, 1897.

[72] Hoffmeister: Deutsche med. Woch., No. 22, 1896.

[73] Baumann and Goldmann: Münch. med. Woch., vol. xliii, p. 1153, 1896.

[74] Hutchinson: British Medical Journal, July 16, p. 142, 1898.

[75] Magnus Levy: Berliner klin. Woch., vol. xxxii, p. 650, 1895.

[76] Scholz: Centralb. f. innere Med., vol. xvi, pp. 1041, 1069, 1895.

[77] Mendel, Roos, Napier, Ord, Voit, quoted by Chittenden, Trans. Amer. Congress of Phys. and Surgs., vol. iv, p. 87, 1897.

[78] Nicholson: Jour. Obstet. and Gynec. for British Empire, July, p. 40, 1902.

[79] Comte: Thèse de doctorat, Lausanne, 1898.

[80] Launois and Mulon: Annales de Gynéc. et d'Obstét, January, 1904, p. 2.

DISCUSSION.

Dr. Heinrich Stern, New York City—In the investigations of the adrenal system so-called, physiologic investigation is by no means everything. The views and deductions of Dr. Sajous are so comprehensive and so revolutionizing that the bulk of the profession can not follow him. A good deal of the apathy of the profession as regards the acceptance of the ideas advanced by Dr. Sajous is due to the ill will borne him as an independent thinker. Those really opposed to his views are the professional laboratory laborers whose sterility of ideas is proverbial. However, many of the views advanced by Dr. Sajous still lack experimental confirmation. Again, it was Blum who first noticed glycosuria after injection of adrenalin. As a matter of fact, this and similar experiments do not explain anything. Their importance is always exaggerated. Glycosuria may follow the subcutaneous or intravenous injection of quite a number of other animal products, or that of a variety of drugs. To single out adrenalin as a specific glycosuria-producing substance is, therefore, an illogical undertaking. Beside, the administration of adrenalin, as practiced by Blum, is just as often not followed by glycosuria as it is followed by it.

Dr. C. E. De M. Sajous—Dr. Stern overlooks the facts that I mentioned Blum first among the observers who had found that adrenal extract caused glycosuria, and that his experiments were confirmed in this country by Croftan and Herter. I can not say that I have to contend with any of the ill will on the part of the profession to which Dr. Stern refers. New lines of thought require time for their development, and mine can not be expected to form an exception. All I can assert is, that they would never have been advanced had I not been certain that they were poised on a solid foundation.

THE AXIS OF ASTIGMATISM.*

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Twelve years ago[1] I presented some views on the axis of astigmatism. Those views consisted partly of propositions to be verified or denied by experience, partly of facts as developed in my practice.

I set forth the initial proposition that the axis of astigmatism does not occur at haphazard, that there is a regularity in its occurrence in a given eye, and that there is a certain definite relationship between the axes in two eyes when both happen to be astigmatic.

The experience of the last twelve years has amply verified both the propositions and the facts set forth at that time. This experience embraces 1,176 cases of astigmatism taken from my private practice.

I desire to state that I shall employ the nomenclature indicated by the trial frames ordinarily in use, in which the circle is divided into halves of 180° each, with the 0° starting on the right on both sides in the horizontal plane as one looks at the frame. (Fig. 1.)

I consider this method eminently simple and reasonable, and if it were adopted universally to the exclusion of all others it would add greatly to the accuracy of the surgeon and optician, and would make a prescription written in one country easily, quickly and accurately comprehended in all others.

Inasmuch as I have adopted this method, I shall not discuss that one by which the tilting of the upper or lower end of the glass toward, or away from, the median line is indicated. I consider the method open to many and obviously sound objections.

In order, therefore, that I may pass at once to the discussion of my subject, permit me to take up the consideration of the axis of that cylindrical glass in the various forms of astigmatism *seriatim*.

I shall use the term "axis of astigmatism" synonymously with the axis of the glass that corrects it.

ASTIGMATISM IN A SINGLE EYE.

1. Simple hyperopic astigmatism in a single eye.

In the great majority of cases the axis of this form of astigmatism is vertical—that is, 90°. If a deviation from this position takes place, it must be in the direction of the horizontal axis on either of the two sides of the vertical, and the first position assured by such a deviation is the axis 75° or the axis 105°, which in this case is a deviation of 15° from the vertical position. The next axis of preference is either 135° or 45° on the other side of the vertical.

Now, the point which I wish to emphasize is that these five position, 90°, 75°, 45°, 105° and 135°, are the positions of preference in hyperopic astigmatism. When other axes than these are found they are irregular and unusual, and are the exceptions that prove the rule.

The arc of 90° extending from 135° to 45°, I describe as the realm of hyperopic astigmatism.

In this arc, as stated, 90° is the most usual, 105° and 75° less, and 135° and 45° the least usual.

The percentage of irregularities in this realm will be referred to later.

The axis 0° occurs by exception, and has been called the axis against the rule. It should be called simply horizontal, for any axis that lies beyond 135° or 45° toward the horizontal plane, is against the rule. I would, therefore, suggest that the expression, "against the rule," in hyperopic astigmatism, be used to describe any axis that lies beyond 135° or 45° toward the horizontal plane. (Fig. 2.)

2. Simple myopic astigmatism in a single eye.

The axis of simple myopic astigmatism is, in the large majority of cases, horizontal. If the astigmatism selects a deviation from this axis, it selects the axis that is 15° from the horizontal on one side or the other; in other words, the axis 165° or the axis 15° is chosen.

The arc of 30° extending 15° to 165° I describe as the realm of myopic astigmatism.

In this realm the horizontal is by far the most frequent, and the axes 15° and 165° occur with nearly equal frequency.

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[81] Wright: Brit. Med. Jour., March 19, p. 667, 1904.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] New York Med. Jour., June 25 and July 2, 1892.

When, as in rare exceptions, the axis lies vertical, it is said to be against the rule. Whenever the axis lies beyond 15° or 165°, toward the vertical plane, it is against the rule. I, therefore, suggest that the expression, "against the rule," in myopic astigmatism be used whenever the axis lies beyond 15° or 165°, toward the vertical meridian.

The percentage of irregularities in this realm will be referred to later. (Fig. 3.)

3. Compound hyperopic astigmatism in a single eye.

Statements made with reference to the axis in simple hyperopic astigmatism, hold in compound hyperopic astigmatism, for obvious reasons.

4. Compound myopic astigmatism in a single eye.

The axes of compound myopic astigmatism are the axes of simple myopic astigmatism.

5. Mixed astigmatism in a single eye.

It may be broadly said that the rules which obtain in hyperopic and myopic astigmatism hold good when these conditions occur in the same eye, as in mixed astigmatism. The axis of the hyperopic astigmatism is restricted, as a rule, to the realm marked out for this error, and to the axes of preference in this realm. The axis of the myopic astigmatism is restricted to its realm and the axes of preference contained therein, so long as this is permitted by the axis of the hyperopic astigmatism. The two axes invariably, and of necessity, lie at right angles to each other.

If the hyperopic axis lies at 75°, the myopic axis will lie at 165°; if the myopic at 15°, the hyperopic will lie at 105°. If, however, the hyperopic axis lies at 135° or 45°, the myopic axis will be forced from its proper realm and will be compelled to invade the realm of the hyperopic axis. For example, if the hyperopic axis lies at 135°, the myopic will be at 45°, or *vice versa.*

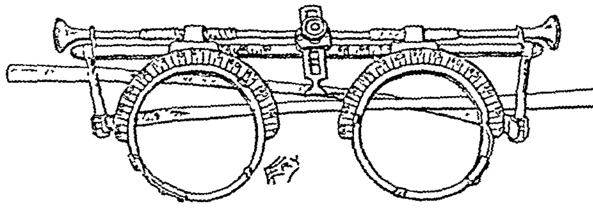
Figure 1.

The following are the regular positions of the axes in mixed astigmatism in a single eye. (Fig. 4.)

ASTIGMATISM IN BOTH EYES.

We come next to the consideration of the axis of astigmatism in each eye with relation to that of its fellow.

Before entering this subject, I would refer to the initial proposition relative to the definite relationship existing between the axes in the two eyes when each is astigmatic.

Experience has shown me that without a doubt the axes in the two eyes have a definite relationship to each other, and, indeed, this is necessary if the positions of preference in each eye separately be admitted or proved.

When the axes in the two eyes have the same position, I call them correspondent or in correspondence. If each be at 90°, they are correspondent. If each be at 180°, they are correspondent. When the axes lie off the horizontal or vertical and occupy the same position as indicated by the nomenclature of the half disc of the trial frame, they are no less correspondent, and it is when this phenomenon arises that the value of this nomenclature over the other is demonstrated. Suppose, for example, the axis in each eye is found to be at 75°, the axes will be tilted, the upper end of one toward the median line, the upper end of the other toward the temple. But the statement that the axes are "75° in correspondence," or simply the statement that they are both 75°, makes the facts perfectly clear.

When each axis is 135° or 45°, the bare statement of the fact is similarly clear.

At first sight the adjective, parallel, would appear, under these conditions, to be appropriate, but it would obviously be inadequate and inaccurate when each axis is horizontal or vertical. For, while they might be said, in the case of 90°, to be parallel, in the case of 180° or 0° they could not be said to be parallel; for, if each axis is continued toward its fellow, they will meet in the same plane and become coincident. The multiplication of terms is ill advised, and inasmuch as the expression, "in correspondence," covers all the cases cited above, I suggest this to indicate the fact that the axis of astigmatism lies in the same plane in the same meridian in each eye. I, myself, have used and taught this expression for the last twelve years.

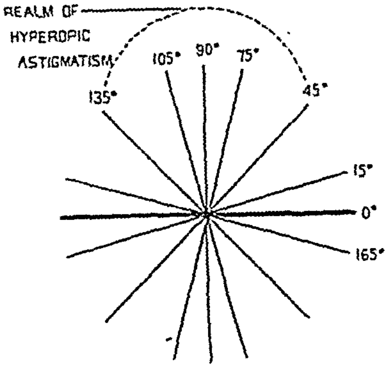

Figure 2.

1. Simple hyperopic astigmatism in both eyes.

In broad terms, the axes correspond or are at angles to each other. If, for example, the axis of one eye is vertical, that of its fellow is vertical. If the rare occurrence of the axis in the horizontal be found in one eye, the axis of the fellow is also horizontal. If the right axis be found to be 75°, the axis in the left eye is usually 105°. If, therefore, these two axes be prolonged upward and inward in straight lines, they will both converge toward the median line and intersect one another at the angle of 30.° (Fig. 5, B.)

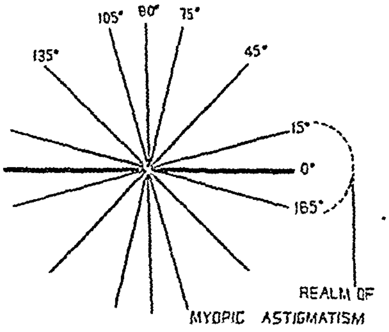

Figure 3.

If the right axis be found at 105°, the left will lie at 75°, and a continuation of these axes downward and inward, in straight lines, will cause them to converge toward the median line and intersect at the angle of 30°. (Fig. 5, C.)

If the right axis lies at 135° and the left at 45°, a *continuation* of these lines downward and inward will cause them to intersect at an angle of 90°. (Fig. 5, D.)

If the right axis lies at 45° and the left at 135°, they will intersect at the angle of 90°, if continued upward and inward.

These five positions are, as heretofore set forth, the axes of preference lying within the realm of hyperopic astigmatism; and the position of the axis in each eye relative to its fellow in the opposite, is the usual one. Nevertheless, it is possible for the axes in the two eyes to be in correspondence. This is exceedingly rare, but it nevertheless occurs.

The following correspondent axes of 105° occurred four times in 1,176 cases of astigmatism. (Fig. 5, G.)

The following correspondent axes, 135°, occurred once in 1,176 cases of astigmatism. (Fig. 5, H.)

Correspondence in 45° and in 75° did not occur at all in 1,176 cases.

It has been stated that the myopic axis may invade the realm of the hyperopic axis.

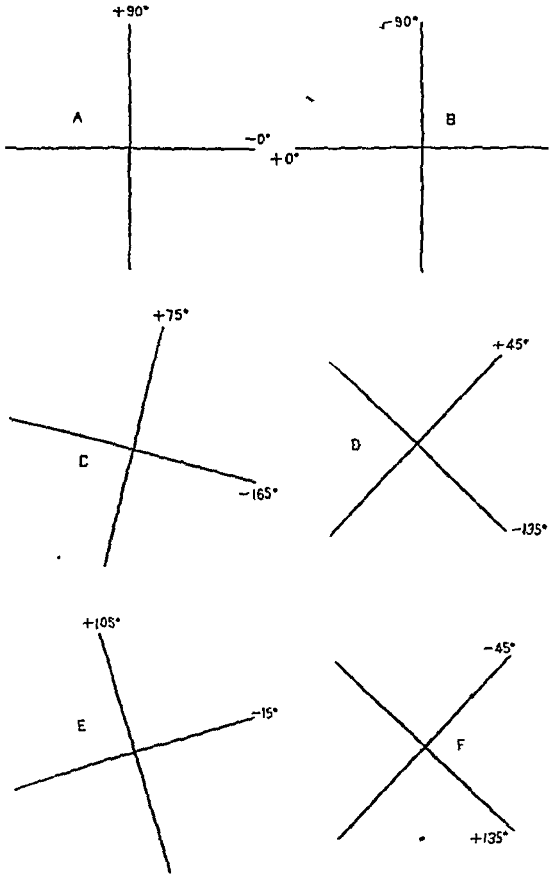

Figure 4.

The following case, which occurred once in the above-mentioned number of cases, is remarkable (Fig. 6):

2. Simple myopic astigatism in both eyes.

If the axis of one eye lies horizontal, the axis of the fellow is usually horizontal. If the axis of the right eye is 15°, the axis of the other is usually 165°, and if these two axes be continued in straight lines upward and inward they will intersect at an angle of 30°. (Fig. 7, B.)

It is possible, however, for the oblique axes to be in correspondence.

The following axes in correspondence occurred 3 times in 1,176 times (Fig. 7, C.):

Hyperopic astigmatism in correspondence invaded the myopic realm once in 1,176 times. (Fig. 8.)

The axes 15° in correspondence occurred twice in 1,176 times. (Fig. 7, D.)

At times the axes in each eye lie at 90°. (Fig. 7, E.)

There are three regular positions, then, for the axes in myopic astigmatism in both eyes, 180°, 15° and 165°.

When the axes are oblique they will intersect when prolonged toward each other at an angle of 30°.

3. Compound hyperopic astigmatism in both eyes.

The rules that have been drawn for the axes in simple hyperopic astigmatism in both eyes obtain for the axes of compound hyperopic astigmatism in both eyes.

4. Compound myopic astigmatism in both eyes.

The rules that have been drawn for the axes in simple myopic astigmatism in both eyes obtain for the axes of compound myopic astigmatism in both eyes.

5. Mixed astigmatism in both eyes.

In mixed astigmatism in both eyes the hyperopic axis is usually vertical in each eye, and the myopic axis is usually horizontal in each eye.

Matters, however, become somewhat complicated the moment any departure from the most usual position takes place in mixed astigmatism.

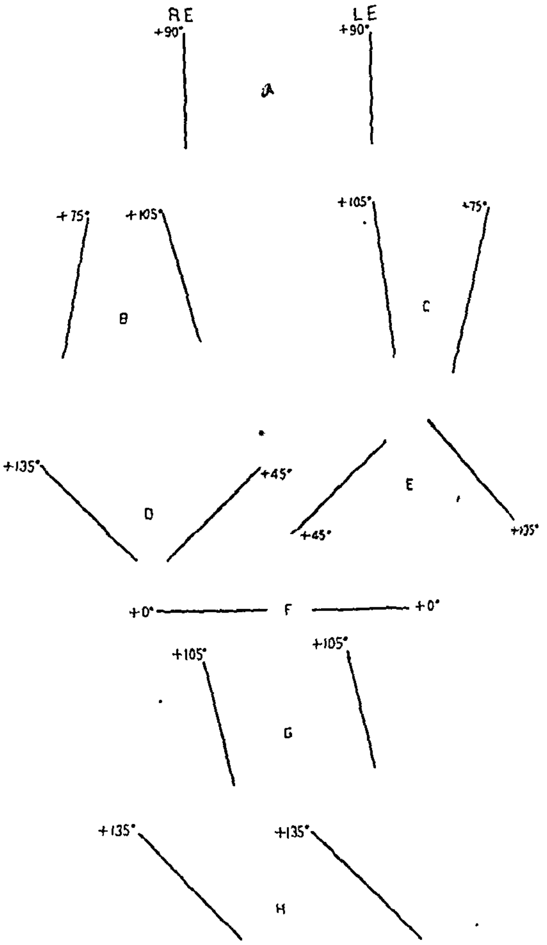

Figure 5.

The following are the usual positions of the axes in mixed astigmatism in both eyes (Fig. 9):

It is, of course, possible for correspondence to take place similarly in the two eyes. This, however, is so exceedingly rare that I found it but once in 1,176 cases. (Fig. 10.)

We come on now to the consideration of irregular cases—that is, those in which the axis occurred within the confines of its own realm, but at unusual positions, not the positions of preference.

Eighty of these irregular cases were found among 1,176 cases of astigmatism, .68 per cent.

These figures prove conclusively that there are axes of preference for hyperopic and myopic astigmatism within the realm proper of each, and amply justify the propositions and views set forth by me in 1892.

The percentage of irregularity (.68 per cent.) is so small, and the percentage of regularity, 99.32 per cent., so great, that a conclusive, definite statement is warranted.

IRREGULARITIES WITHIN THE REALM OF HYPEROPIC ASTIGMATISM.

The axis of 60° occurred 25 times in 80 irregular cases; that is, 31 per cent.

The axis 120° occurred 24 times in 80 irregular cases; that is, 30 per cent.

The axis 110½° occurred once in 80 irregular cases.

Myopic astigmatism once in the irregular cases invaded the realm of hyperopia; this axis was exceedingly erratic; it was at 70°.

With the exception of the just mentioned erratic axis of myopic astigmatism, it is shown by the above figures that only 49 cases of irregularities occurred in the realm of hyperopia, out of 1,176 cases, and that of these the axes lay: 25 at 60° and 24 at 120°. This shows conclusively that if the ordinary axes of preference in hyperopic astigmatism are not chosen, the axis 60° or 120° is preferred.

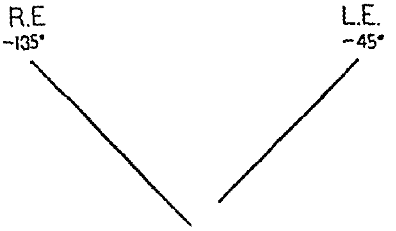

Figure 6.

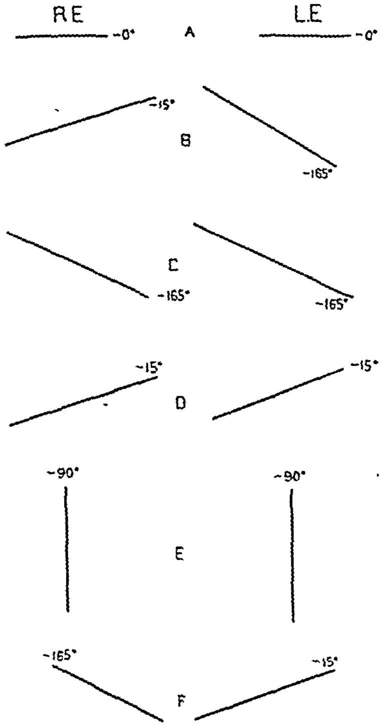

Figure 7.

IRREGULARITIES IN THE REALM OF MYOPIC ASTIGMATISM.

The axis 170° occurred five times in 80 irregular cases—that is, 6 per cent.

The axis 10° occurred once in 80 irregular cases.

The axis 2½° occurred once in 80 irregular cases.

It is conclusively shown by the figures that only 7 cases of irregularity occurred in the realm of myopic astigmatism, out of 1,176 cases, and that if the ordinary axes of preference in this realm are not chosen, 170° is preferred.

We have already pointed out the realm of hypermetropic astigmatism and that of myopic astigmatism. The areas occupied by these two realms, however, do not comprise the entire circle. For lying between 135° and 165° on the one side is an arc of 30°, and between 45° and 15°, on the other, another arc of 30°, which may be denominated the realms of neutrality, and which may be invaded by either the myopic or hyperopic axes. (Fig. 11.)

We shall regard first the axes which lie within the arc of 30° to be found between 15° and 45°.

Hyperopic astigmatism, with the axis at 30°, occurred fourteen times in the 80 irregular cases referred to, 17 per cent.

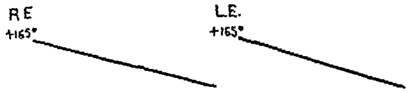

Figure 8.

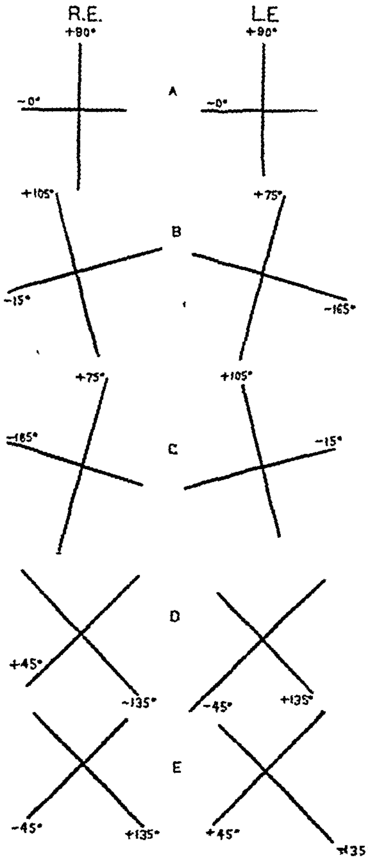

Figure 9.

Myopic astigmatism, with the axis at 30°, occurred seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the axis at 20° four times in the 80 irregular cases, 5 per cent.

The axis 30° and 20° were the only two axes selected in this arc of neutrality, hyperopic astigmatism occurring fourteen times at 30°, myopic astigmatism occurring seven times at 30°, and only myopic astigmatism occurring four times at 20°.

From these facts it appears that there are two axes of preference in this arc of neutrality, 30° and 20°, and that 30° is twice as usual in hyperopia as in myopia and that myopia alone occurs at 20°.

We shall now consider the arc lying between 135° and 165°.

Hyperopic astigmatism occupied the axis 150° seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the axis 150° seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the extremely erratic axis 155° once in these cases.

From the above it appears that there is only one axis of preference in the arc of neutrality lying between 135° and 165°, and that that axis is 150°.

The axis 155° occurred only once, while the axis 150° occurred fourteen times, being occupied seven times by myopic astigmatism and seven times by hyperopic astigmatism.

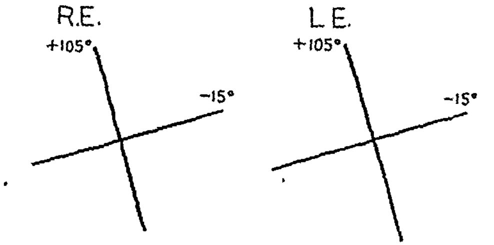

Figure 10.

No other axes occurred in the arc in the 1,176 cases of astigmatism.

It is interesting to note that correspondence occurred five times in the 80 irregular cases, 6 per cent., and in these five times 60° occurred twice, 30° twice and 120° once.

It has been stated that there is a regular relationship between the axes of astigmatism in the two eyes when the axes occupy the positions of preference in the regular realms of myopia and hyperopia.

It is interesting to observe that the same regular relationship exists when the axes are irregular, as, for example, in Figure 12. The intersection of these two axes form an angle of 90°. Again, in Figures 13 and 14, an angle of 60° is found.

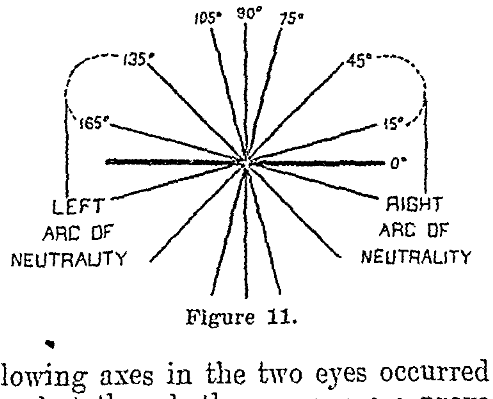

Figure 11.

The following axes in the two eyes occurred twice in 1,176 cases, but though these axes were proved correct time after time by separate tests of each eye, the patient in one case could not wear the glasses and was compelled to wear the axis at 180°. (Fig. 15.)

There were 1,042 cases of bilateral astigmatism. In 142 cases there was non-conformance with the rule in the relationship of the axes, 13 per cent. *Per contra*, there were 901 cases of conformance, 87 per cent. This percentage of conformance establishes the rule.

It is plainly shown by all these facts that when astigmatism occurs in the two eyes, the axes bear a definite relationship to each other, whether the astigmatism occurs in its proper realm, whether it invades that of its fellow, or whether it occurs in the realms of neutrality.

It is further shown that the axes in the two eyes when continued toward the median line, intersect each other at 30°, 60° or 90°, i. e., in the multiples of 30°.

The routine which I am accustomed to use in determining the quality, amount and axis of astigmatism, is to use skiascopy first, then the direct method, and finally the ophthalmometer.

In clinical work, and frequently in private practice, I use a modification of Placido's disc, constructed on the lines laid down above with reference to the realms of myopic and hyperopic astigmatism. I have employed the ophthalmometer regularly in private practice for eight years only. Antecedent to that time, I used it irregularly or not at all.

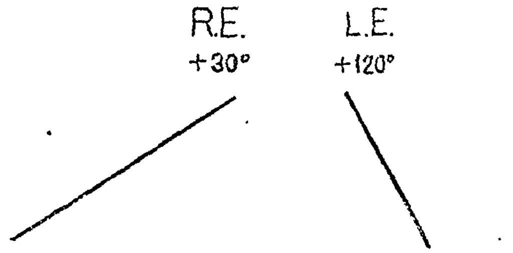

Figure 12.

I rely on the shadow test for the axis of astigmatism as confidently, if not more confidently, than I do on the ophthalmometer. The latter instrument frequently fails to give the exact axis as established by the subjective test, when the astigmatism is oblique. When, however, the axis lies horizontal or vertical, I have found the ophthalmometer true. All who use skiascopy know it is possible to see when the shadow is just off the vertical or horizontal, and when this is the case it may with reasonable certainty, be assumed to be at 75° or 105° in the case of hypermetropic astigmatism, or at 15° or 165° in the case of myopic astigmatism.

If the shadow moves in a plane more than 15° beyond the vertical or horizontal, it will be found, as shown by my statistics, in one of the positions of preference which lie beyond these planes.

I wish to state emphatically, however, that I consider the subjective test the crucial test, and I regard its decision as final.

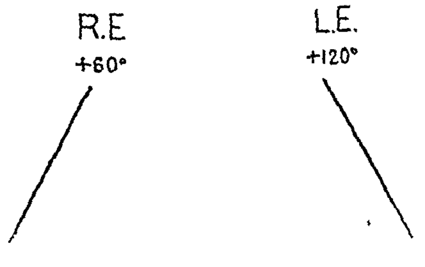

Figure 13.

When the patient is not intelligent enough to establish the fact conclusively, that axis is selected which is indicated by the sum of the evidence furnished by all the methods.

In using my modification of Placido's disc (Fig. 16) I use a + 4 D., held in one hand, behind the aperture.

CONCLUSIONS.

1. The axis of astigmatism does not occur at haphazard.

2. There is a realm of preference and there are positions of preference within the realm for hyperopic and myopic astigmatism, respectively.

3. The realm of hyperopic astigmatism is the arc of

the circle, inclusive of the axes, 45° and 135°, and the positions of preference in this realm are the axes 90°, 105,° 135°, 75° and 45°. The realm of hyperopic astigmatism is, therefore an arc of 90°.

4. The realm of myopic astigmatism is the arc inclusive of the axes 15° and 165°, and the positions of preference in this realm are the axes 180°, 15° and 165°. The realm of myopic astigmatism is, therefore, an arc of 30°.

5. There is a realm or arc of neutrality of 30°, lying between 15° and 45° on the one side of the circle, and 135° and 165° on the other.

The arc of 30° lying between 15° and 45° may be called the right arc of neutrality, since it lies on each side to the right as one looks at the spectacle frame.

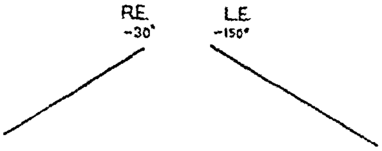

Figure 14.

The arc of 30° lying between 135° and 165° may be called the left arc of neutrality, since it lies to the left on each side as one looks at the spectacle frame.

Within the right arc of neutrality, 15° to 45°, the axes of preference are 30° and 20°, and 30° occurs twice as usual in hyperopia as in myopia, and myopia alone occurs at 20°.

Within the left arc of neutrality, 135° to 165°, there is one axis of preference, viz., 150°, and this occurs with equal frequency in myopia and hyperopia.

6 Of 1,176 cases of astigmatism, 80 cases were found in the realms of hyperopia and myopia in which the axes did not lie in the positions of preference. These are exceptional irregular cases.

The percentage of irregularity within the realms of hyperopia and myopia was 0.68 per cent.

Per contra, the percentage of preference was 99.72 per cent.

These facts establish the correctness of the preceding statements touching the positions of preference within the realms of hyperopia and myopia.

7. If the ordinary axes of preference in the realm of hyperopia are not chosen, the axes 60° and 120° are selected with equal frequency.

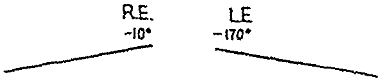

Figure 15.

8. If the ordinary axes of preference in the realm of myopia are not chosen, the axis 170° is selected.

9. Of 1,176 cases, 54 were found in which the hyperopic axis lay at 180°, .4+ per cent.

10. Of 1,176 cases, 21 were found in which the myopic axis lay at 90°, 1.8 per cent.

11. From these facts it is obvious that the hyperopic axis is found twice as frequently in the horizontal meridian as the myopic in the vertical meridian.

12. When astigmatism occurs in each eye, the axes bear a definite relationship to each other.

13. They may occupy the same position, in which case they are correspondent or in correspondence, or they may be inclined to the median line at a certain definite angle which is the same in each eye.

14. The angles at which they are inclined to the median line are 30°, 60° or 90°, or multiples of 30.

15. This obtains whether the axis lies in its own proper realm, in the realm of opposite quality, or in either of the realms of neutrality.

16. Of 1,043 cases of astigmatism in both eyes, there were 142 cases of non-conformity with the above statement, i. e., 13 per cent. *Per contra*, there were 901 cases in which there was conformity, i. e., 87 per cent.

These facts establish the correctness of the preceding conclusions touching the relationship of the axis in each eye to its fellow in the other eye.

17. There were 16 cases of correspondence all told, in 1,176 cases, 1.4 per cent. Of these 16 cases, 11 occurred in the axes of preference; of the remaining 5 cases, correspondence at 30° occurred twice, at 60° twice, and at 120° once.

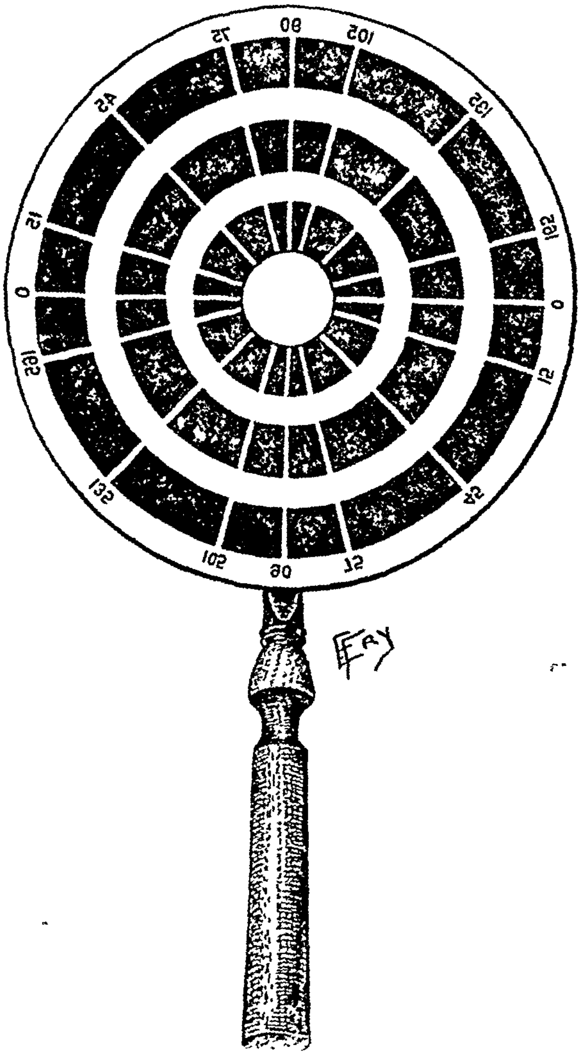

Figure 16.

18. The occurrence of the number 15, or its multiples, in the axis of astigmatism in each eye separately, as indicated in the positions of preference in every realm, and in the relationship of the axes in the two eyes toward each other, is remarkable, and warrants the conclusion that the axis of astigmatism does not occur at haphazard; that the law which governs it is a law of multiples, and that 15 is the common multiple.

19. The method of indicating the axis of astigmatism furnished by the ordinary trial frame in common use, is without doubt the simplest and most accurate, and should be universally employed.

34 W. Thirty-sixth Street.

THE RELATION OF CORNEAL CURVATURES TO THE REFRACTION OF THE EYE.*

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DENVER.

I have included in this report all cases of refraction examined under a cycloplegic that came under my care from December, 1901, to December, 1903. The errors of refraction were estimated in the usual manner with trial lenses. The instrument used in making the corneal measurements was the ophthalmometer of Chambers, Inskeep & Co. On the side of one of the recording wheels the curvature of the corneal meridians can be read off in millimeters. This instrument, so far as I know, is accurate. It does not measure corneal meridians whose radii of curvature are shorter than 6.85 mm., nor of those longer than 9.00 mm.

TABLE 1.

Radius of Corneal Curvature Measured in Millimeters.	Number of Meridians Found with This Curvature.	Number of These Meridians Found To Be Hyperopic in Refraction.	Number Found To Be Myopic in Refraction.	Number Found Emmetropic.	Aggregate Amount of Hyperopia.	Aggregate Amount of Myopia.	Average Hyperopia.	Average Myopia.
9.00	....	....	...	...	......	......	....	....
8.93	....	....	...	...	......	......	....	....
8.87	....	....	...	...	......	......	....	....
8.80	....	....	...	...	......	......	....	....
8.75	2	2	...	...	6.50	......	3.25	....
8.70	....	....	...	...	......	......	....	....
8.65	....	....	...	...	......	......	....	....
8.60	....	....	...	...	......	......	....	....
8.55	6	4	...	2	9.50	......	1.58	....
8.50	7	5	...	2	7.25	......	1.03	....
8.45	13	11	2	...	12.50	7.00	0.96	0.54
8.41	11	8	3	...	19.75	12.00	1.79	1.09
8.36	31	24	3	4	64.25	9.50	2.17	0.36
8.31	17	11	2	4	15.25	4.00	.90	.25
8.26	37	25	7	5	42.00	15.25	1.10	.41
8.21	39	25	10	4	47.75	30.00	1.22	.80
8.16	71	47	15	9	70.75	58.75	.90	.80
8.11	38	24	10	4	41.50	32.75	1.08	.85
8.05	74	52	12	10	68.25	24.00	.90	.30
8.00	54	35	12	7	44.25	30.75	.80	.50
7.95	122	91	12	19	107.50	18.25	.80	.10
7.90	80	59	12	9	83.00	12.25	1.05	.10
7.86	117	72	27	18	70.75	38.00	.60	.30
7.82	115	83	14	18	76.50	43.50	.60	.30
7.78	168	101	35	32	102.25	86.25	.60	.50
7.74	83	54	13	16	62.00	46.50	.70	.50
7.70	149	98	29	22	105.75	47.50	.70	.30
7.66	91	56	17	18	53.50	41.75	.58	.40
7.62	145	81	41	23	97.75	86.00	.67	.60
7.58	58	36	12	10	31.00	16.25	.53	.28
7.52	119	81	21	17	48.75	27.75	.40	.22
7.48	58	31	18	9	31.25	33.25	.54	.59
7.44	154	59	83	12	57.50	89.00	.37	.58
7.40	37	23	8	6	22.75	7.75	.60	.20
7.37	49	23	14	12	19.75	29.75	.40	.60
7.34	29	12	13	4	10.00	30.50	.34	1.05
7.31	45	19	22	4	19.00	62.75	.42	1.38
7.27	13	5	4	4	4.50	8.25	.34	.63
7.23	8	3	4	1	2.50	20.75	.31	2.59
7.19	8	3	3	2	4.50	15.00	.62	1.87
7.15	14	4	8	2	5.25	27.75	.37	1.97
7.11	4	2	2	...	3.00	3.00	.75	.75
7.07	9	4	3	2	4.25	7.75	.47	.80
7.03	5	....	4	1	......	5.50	....	1.10
7.00	4	....	4	...	......	3.75	....	.93
6.97	1	....	1	...	......	1.00	....	1.00
6.93	1	....	1	...	......	2.75	....	2.75
6.90	5	....	5	...	......	22.75	....	4.55
6.85	1	....	1	...	......	1.50	....	1.50
	2092	1273	507	312				

Reference to Table 1 shows that out of 2,092 corneal meridians examined, 1,273 were hypermetropic in refraction, 507 myopic and 312 emmetropic. It was found that the instrument measured all corneæ that came under my observation, except one case of conical cornea and one cornea examined soon after cataract extraction. Its field of measurement was found to be more than sufficient for all practical purposes. The table shows that of the 2,092 meridians examined none was found of a shorter radius of curvature than 6.85 and none longer than 8.75 mm.

Some explanation of my tables is necessary. The first column shows the radius of each corneal curvature as measured in millimeters. Columns 2, 3, 4 and 5 are self-explanatory. Column 6 is the total meridional refraction found to be hypermetropic, and is expressed in dioptries. Column 7 records the total refraction of the meridians found to be myopic. In Column 8 the aggregate amount of hypermetropia is divided by the total number of meridians recorded in Column 2. In Column 9 the same division is carried out with the myopic meridians. It may be asked why the aggregate hypermetropia was not divided simply by the number of meridians found hypermetropic, and the aggregate myopia by the number of meridians found myopic. If this had been done the number of meridians found to be emmetropic would not have entered into the equation, nor would we have the true average of ametropia of the total number of meridians with a given curvature. You will observe that out of 2,092 meridians examined, there were 168 meridians whose radius of curvature was 7.78 mm. This meridian stands about midway between the extreme curvatures. It was hypermetropic in refraction in 101 instances and emmetropic in 32. These figures record the greatest number of hypermetropic and emmetropic meridians. It will also be observed that the number of hypermetropic and emmetropic meridians recorded increases gradually from the center toward the top and bottom of the table.

TABLE 2.

Radius of Corneal Curvature Measured in Millimeters.	Number of Meridians Found with This Curvature.	Number of These Meridians Found To Be Hyperopic in Refraction.	Number Found To Be Myopic in Refraction.	Number Found Emmetropic.	Aggregate Amount of Hyperopia.	Aggregate Amount of Myopia.	Average Hyperopia.	Average Myopia.
9.00 to 8.80	....	....	...	...	......	......	....	....
8.75 to 8.60	2	2	...	...	6.50	......	3.25	....
8.55 to 8.41	37	28	5	4	49.00	19.00	1.33	.51
8.36 to 8.21	124	85	22	17	169.25	58.75	1.36	.48
8.16 to 8.00	237	158	49	30	224.75	146.25	.95	.61
7.95 to 7.82	434	305	65	64	337.75	111.50	.80	.25
7.78 to 7.66	491	309	94	88	427.50	222 00	.90	.45
7.62 to 7.48	380	229	92	59	208.75	163.25	.55	.45
7.44 to 7.34	269	117	118	34	110.00	157.00	.41	.60
7.31 to 7.19	74	30	33	11	30.50	106.75	.41	1.44
7.15 to 7.03	32	10	17	5	12.50	44.00	.39	1.37
7.00 to 6.85	12	....	12	...	......	31.75	....	2.64
	2092	1273	507	312				

Table 2 groups the meridians of the first table in fours. In this way the averages of hypermetropia and myopia are more striking. The longer the radius of corneal curvature, the greater is the average of hypermetropia, and the shorter the radius of corneal curvature, the greater the average of myopia. This is striking enough in Table 1, but in Table 2 the reduction in the average hypermetropia from the meridian of greater to that of lesser radius is very striking indeed. The average myopia gradually increases in the same ratio that the hypermetropia decreases.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June. 1904.

It seems to me that these 2,092 meridians examined serve to show conclusively that the radius of corneal curvature has a very marked influence on the refraction of the eye. I can understand how a great many cases of axial myopia that have reached a high degree of progression would upset such relations as shown in my table, but fortunately for my conclusions, we do not see very many such cases in our western country.

I regret that my table of statistics is not larger, and that I did not begin making record of the radius of the corneal curvature more than two years ago. I hope at some future time to report further on this subject.

DISCUSSION

ON PAPERS OF DRS. CLAIBORNE AND BLACK.

Dr. O. A. Griffin, Ann Arbor—I would add a word in explanation of why the realms of hyperopic and myopic astigmatism are quite constant. In my opinion, this is due to the fact that the shortest diameter of the orbital cavity is usually placed vertically, which would tend to make the vertical curvature of the cornea greater than that of the horizontal. This tendency is augmented by the constant pressure of the lids on the upper and lower margins of the cornea. If the orbital axis and palpebral aperture are placed obliquely, the pressure on the cornea will be correspondingly exerted with a resulting obliquity in the axis of astigation; but, inasmuch as this is not the rule, the axes are usually symmetrical and the vertical curvature of the cornea is greatest. Not infrequently asymmetry of the axes obtains its origin in asymmetry of the lenticular curvatures, as is shown by the fact that the axis as determined subjectively does not correspond to the ophthalmometric findings. That the axis of astigmatism is not constant should be remembered in ordering correcting glasses, especially when the axes are oblique and a subsequent check test is not made after a cycloplegic determination of the refraction which, in many instances, reveals a wholly different position of the axis. These changes may be due to a false position of the lens, produced by paralysis of the ciliary muscle or action of the obliques. In the latter instance change of axis is usually observed in those cases in which the axes are slightly inclined from the vertical or horizontal positions, when there is an effort on the part of the oblique muscles to make the axes correspond in each eye, thus finally producing hypertrophy of the acting muscle or insufficiency of its opponent. With constant use of correcting glasses, the hypertrophy diminishes with a subsequent change in the axis of astigmatism—thus illustrating the importance of always determining the condition of the ocular muscles and its effect on the refractive condition before prescribing glasses.

Dr. A. G. Bennett, Buffalo, N. Y.—I agree with Dr. Claiborne that there is a realm of predilection for the axis to fall in, but I think it must be taken with reservation because age has considerable effect. In a study I made last year of 7,665 eyes I took my cases and divided them into decades. I spoke of the axes as falling in the meridian of greatest refraction. I found that in the first decade it occurred in nearly 90 per cent. in what I called the vertical region, which takes in 25 degrees on each side of the absolute vertical. In the first decade nearly 90 per cent. were in this region and 4 per cent. only in the horizontal. In the next decade, from ten to twenty, the vertical axis prevailed in 77 per cent.; in the next, from twenty to thirty, in 75 per cent.; from forty to fifty, 54 per cent.; after the patients reach fifty the axis will not occur in the vertical region half the time; it is about 37 per cent. When over seventy I found only 29 per cent. vertical. This is true within certain limitations of myopia, but I do not find variations so pronounced as in hypermetropia.

Dr. G. C. Harlan, Philadelphia—With reference to the relation of the axes in the two eyes: A few years ago I had 500 cases collated from the Wills Hospital records and in 70 per cent. the axes were exactly symmetrical, and in 78 per cent. within ten degrees of exact symmetry.

Dr. J. L. Borsch, Philadelphia—I would like to ask Dr. Black to explain his modification of the Placido disc. I have been using the de Wecker keratometer and will briefly describe it, as it is the most accurate, simple and rapid means of ascertaining astigmatism, besides having the advantage of being very inexpensive, costing from $12 to $14. It consists of a black disc with a central perforation; on one side of the instrument are white strips that form a perfect square when the pointer indicates zero. These strips are so arranged as to overlap and are movable; on the other side is a register marked from 0 to 18 diopters and a pointer attached to a screw which moves the white strips. Around the central perforation in the disc is a brass circle marked in degrees from 0 to 180, and on the plate an arrow to indicate the axis of astigmatism. The disc is held in one hand at 30 cm. from the patient's face and he is asked to look into the perforation with one eye, the other being covered with the hand. The observer on looking at the patient's cornea through the perforation will see an image of the white strips; if they form a perfect square there is no astigmatism; if they form an oblong—turn the instrument 90 degrees—turn the screw until the strips form a perfect square and then read off the amount of astigmatism, the degree and axis.

Dr. J. H. Claiborne—My modification of Placido's disc is represented in one of the pictures. You simply observe whether the picture is round or oblong. The instrument which I show here is practically the same thing. I have termed these positions of preference. I judge about where it is by means of the reflection. The ophthalmometer is not an accurate instrument; it often misses the axis by 15 degrees, especially where the astigmatism is oblique. With this instrument and a convex lens I can tell the astigmatism within three-quarters of a diopter. That is the result of ten years' constant practice with the instrument. I think I have a little facility in the examination of refraction; I have this because I bear these outlines in mind. After using skiascopy and the ophthalmometer, I put the cylinder at the first position of preference and then in a few minutes, if necessary, run up all these axes. It follows the rules which I evolved about ten or twelve years ago and have proved to my satisfaction. Dr. Griffin says that after the mydriatic the axis may be different; of course, but the subjective post-mydriatic test is the final test in all these cases. Concerning the axes of neutrality I think there are axes within that arc that are chosen. I would like to have the section observe these things. My 1,200 cases proved it to me conclusively and I would like to have the corroboration of the members of the section. I am sure they are largely true, if not in the exact percentage I have found.

THE MECHANICAL TREATMENT OF HIP DISEASE.*

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Gentlemen:—Your friendly greeting reminds me of the splendid time which it was permitted me to spend in your great, free country. As that period was the most beautiful in my whole life, I naturally am glad to be reminded thereof, and, before everything else, let me thank you for having brought to my memory those reminiscences of America. Indeed, as I look over this meeting I can once more feel myself back in that time when I was permitted to describe and demonstrate my bloodless orthopedic operations to large audiences of my American colleagues. My American brethren were indeed very amiable, but they also let me work very hard. I may say that never in my life have I labored as in America. It was there that I learned what it meant to lead a "strenuous life."

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* Address delivered before the Anglo-American Medical Association of Vienna, 1904.

I have chosen as the subject of my discourse one which will, perhaps, be of especial interest to you, because the views concerning it in America are entirely at variance with our conception of the subject. But I must emphasize that my own point of view in regard to the question of the mechanical treatment of hip disease differs very materially, not only from that held by Americans, but also from that held by many Europeans. I must, therefore, be prepared to be opposed and contradicted by some of my orthopedic colleagues in Europe.

In order to be able to judge of the value of mechanical treatment of hip disease, it is very important, as well as instructive, to take a look at such cases as have never been treated mechanically. Such cases are by no means rare. How often, indeed, is complicated and costly treatment impossible on account of the poverty of the parents, or oftener, on account of the great distance to the place where such treatment is offered. No less frequently does it happen that the parents become wearied of the lengthy treatment and give it up, letting the disease take its own course.

These cases all find their way to the physician in the end; oftenest after the disease has as good as run its course. What is it that impels the patient, or his parents, to seek the physician? It is the contraction deformity, as a rule, the flexion-adduction contraction, the shortened leg that becomes troublesome on account of the impediment to the gait. I must openly admit that to me such patients are not only the most interesting, but also the most desirable. They cause neither worry nor difficulty; they suffer no pain, their treatment is perfectly simple, lasts but a short time, and is usually followed by excellent results.

The intra-articular modeling redressement, a central or a subtrochanteric osteotomy, according to circumstances, corrects the contracted position of the joint and improves the patient's gait, usually to his complete satisfaction. In such cases, therefore, we are not treating tuberculosis of the hip, but rather a condition subsequent thereto, namely, the coxitic contracture. I have followed, with greatest interest, those cases in which the course of the disease was not influenced by any physician's mechanical intervention.

The history of one of these cases is about as follows: Many months, perhaps one or two years, before the first onset of the disease, the child limps slightly for a time. Motion in one leg is guarded during walking, lameness appears soon after, or, indeed, it is often apparent toward evening, when the child had previously been quite active. The next morning no trace of lameness is to be noted. After such an attack of limping, there often ensues a period of quiescence, which may be of several months' duration. Then limping once more comes on, to again disappear. One might get the impression that a trick of the child was at the bottom of this temporary lameness.

The lay expression, "voluntary limp," seems to have its origin in this idea. We know that there is nothing more involuntary, that there can be no more absolute constraint than the limp of beginning coxitis. After a whole series of such periods of limping (coxitic attacks), lameness finally becomes permanent. At the same time, it is only rarely that the child manifests pain in the hip or knee. As a rule, the child is active during the day, and sleeps well at night. Gradually, however, the picture changes, the child becomes more careful in its movements, it runs and jumps about less, but can still walk without pain. After greater exertion, pain, which passes away, however, asserts itself, especially in the knee. For a long time the knee is considered the diseased part. By and by sleep becomes restless; the child cries out at times, hardly awaking, however, and if asked why it cries it can not give a definite answer. During the day the child is comparatively or perhaps completely quiet. Gradually the nights become worse, the child awakes screaming, cries for awhile, and then falls asleep only to awaken again with a cry. The following morning the child is comparatively lively, has no pain, and runs about, perhaps limping a little. Toward the end, the child screams more than it sleeps during the night, and is not entirely free from pain during the day, but still manages to hobble about.

After many months, the little patient finally is forced to remain in bed because he can no longer use the diseased leg. During several weeks the child endures severe pain by day and still more by night. At last, however, the condition improves. The child asks to leave the bed, and again begins to get about with the aid of a cane or crutch. In time the pain departs and the child is lively again. During the course of the disease a swelling might have been noticed, which sooner or later opened and discharged pus, or the region about the joint may never have shown any swelling or pus formation. Finally, the crutch is discarded, and the child once more learns to walk fairly well, usually treading on the front part of the foot. The period during which the child can not walk at all lasts from several months to a year, according to the nature of the case, but seldom lasts more than one year. Some exceptional cases never leave off walking at all.

Such is the history of an untreated case. On examination one finds the leg in marked flexion, adduction-contracture; at times the joint is ankylotic. Perhaps scars of sinuses or discharging sinuses are present; perhaps there has been no pus formation. It seems a certainty, to me, that cases, untreated as they are, do not arrive at abscess formation any oftener than those treated mechanically.

So far as the existing contracture is concerned, the capacity for walking remains; the firmer the contracture the better the endurance in walking. The bones are firm and capable of bearing weight; the muscles of the limb are comparatively well developed.

Thus, you see, apart from the contracture, the result of a case, thus spontaneously cured by Nature, is not a poor one. In fact, I believe it is a good one. It is true, moreover, that these never-treated children attain an independent, enduring gait more quickly than the mechanically treated coxitic patients. This is not to be wondered at when we consider the manner in which the strictly mechanical treatment is carried out.

A great number of physicians—and to these belong most of my American colleagues—consider it absolutely necessary to confine coxitic patients to bed for more or less time, and there to carry out the treatment by extension. Such bed treatment is protracted for a number of months or even years. Not until the more alarming manifestations have disappeared are the children permitted to get up. They then get an extension apparatus which fixes the joint and which takes the weight of the body off the hip joint.

Other physicians—to this class belong foremost the English physicians who came under the influence of

Thomas of Liverpool—do not consider extension necessary, but content themselves with removing the weight of the body. However, they hold the same views as the Americans in regard to bed treatment, systematically conducted. A third group of physicians—to this belong the Germans—lay no great stress on bed treatment, but are, for the most part, believers in the ambulatory treatment. In order to carry this out there is applied to the diseased leg, from the pelvis to the sole of the foot, a closely fitting apparatus, precisely constructed, which fixes the joint in the correct position, thereby holding it extended and excluding every contact between foot and floor. Provided with such an apparatus, the sick children may enjoy fresh air and sunlight, and are able to move about fairly well without suffering pain. They are rescued from the confinement to bed and the sick room, which, in itself, is always damaging to health. For the limb, the apparatus is preferable to bed treatment, while the whole organism has the benefit of light, sun and motion, and thus conditions are offered for better nourishment.

Opinions are at variance as to whether extension is absolutely necessary to keep the leg as quiet as possible or whether simple fixation is sufficient. The Americans, and the Germans no less, swear by extension; the English have almost entirely abandoned extension and carry out the treatment of coxitis by fixation alone.

My standpoint in this question is that extension is useful to a certain degree, but is in no case necessary. At any rate, the mechanical treatment of coxitis is extraordinarily simplified by omitting extension. In the last ten years I have used extension practically not at all.

Before describing my treatment I will try to delineate an average case of coxitis which, having been seen at the very beginning of the symptoms, has been treated in the most careful way by all the expedients of mechanical therapy.

Let us assume, for example, that the child in question had been treated from the start by extension in bed for a considerable period which fixed the joint, not only taking the weight off the leg, but also extending the limb and which was worn day and night; say that this treatment has been carried out for all the years which the disease lasted.

We will assume, for the sake of simplicity, that the case was a mild one and that no pus formation had taken place. The pains were slight all through; night cries occurred, to be sure, but they were never bothersome. The child could always move about, with the exception, perhaps, of a longer or shorter period of especial sensitiveness. Accordingly there can be no doubt that this strict mechanical treatment has materially influenced the course of the wearisome disease. Now, to continue with this case, let us remove the "Hülsen-Apparat" and examine the position of the joint and the condition of the leg.

We probably find the joint in good position; perhaps there exists a very slight degree of adduction and flexion, or the joint has an apparent tendency to assume this position after the apparatus is removed. The joint is movable within a very small arc; there is always more or less shortening. On the whole the result of the examination of the joint is favorable.

Now let us look at the leg itself, and we will find it very much emaciated; the muscles flabby and without power; the knee joint has become lax under the long-continued influence of extension. The whole leg appears as a loose wobbling appendage of the trunk. Experience shows that the bones of such a leg are brittle and fragile. If we investigate the independent function of such a leg, there is shown an absolute inability to support, unaided, the weight of the body even for a moment.

This unfitness for function is not caused by pain, but is due to the extreme atrophy of the muscles and bones. Without the apparatus the patient is absolutely unable to walk even one step. He has become a slave to his machine or his crutches. This state of affairs after a while becomes unbearable to the patient. Finally he rids himself of the machine and is satisfied if he is able to walk independently; whether it be poorly or well; if he only does not have to resort to "his machine" again. Should such a patient have learned to emancipate himself from his "Hülsen-Apparat," then in nine out of ten cases an adduction contracture will have supervened in the course of a short time. I will even go so far as to state that this contracture must follow for obvious reasons, unless the patient takes special precautions against it.

If we now compare the two cases, the one which had no mechanical treatment and the other which was treated by the most careful mechanical method, we are forced to acknowledge that, in the latter case, the end result of our efforts of years is disproportionately small. The only noticeable advantage of this strict mechanical treatment is probably a diminution of the coxitic pain. But this is counterbalanced by the great discomfort occasioned the patient by a narrow, tightly fitting apparatus.

The course of the disease is not shortened by the strictest mechanical treatment, the frequency of abscess formation is hardly lessened, whereas the leg will unquestionably remain unfit for independent functional use for a much longer time than if the mechanical treatment had never been used at all. Another so-called advantage is the good position obtained, but this prevails only so long as the apparatus is worn. Let the patient discard the same and he will not often escape the resulting contracture caused by the walking. The advantages thus gained, therefore, are certainly problematic.

The disadvantages which go hand in hand with this extension treatment are very real. The shortening due to lack of growth must necessarily be greater, as the limb is excluded from motion for years. For the same reason the bones will be more brittle and incapable of weight-bearing than if no treatment had been carried out. The muscles of the whole limb are completely atrophied and functionally powerless. Moreover, the knee joint, which had no share in the disease, has suffered from the strict mechanical treatment; it has become loose and unstable and too weak for any function. These consequences, following strict mechanical fixation and extension treatment, arise from the fact that the limb has continually been restrained from use for a period of years. The child is almost in the position of one whose leg is altogether wanting as a result of an amputation at the hip joint.

Absolute functional restraint, continued for many years, is bound to be avenged and does the limb more harm than the disease of the hip joint itself. If, therefore, one compares the two cases referred to above, the one never treated mechanically and the other treated mechanically, in the most painstaking way, it is manifest that the first patient got off better than the latter. Perhaps the first patient has suffered a little more pain, but he has regained the independent use of his limb more rapidly. My view as to the mechanical treatment is that it does too much; it goes too far; it is an overtreatment, which, beside its few advantages, also entails unnecessary damages. No one can criticize the mechanical treatment because it has little effect on local tuberculosis. To cure tuberculosis we will require a serum, which up to the present has not been obtained. But we have a right to demand from mechanical treatment that it allow the general health to be bettered in order to influence the tuberculosis in an indirect way. Beside this we may also demand that the capacity for active locomotion on the part of the patient be guaranteed without the aforementioned after effects of mechanical overtreatment. Any one who has watched coxitis cases which have healed without the intervention of a physician, must finally arrive at these conclusions. From my observation of Nature I have formed my own mechanical treatment. This observation of Nature shows that the diseased joint is sensitive to weight bearing only during a relatively short period of time. During the far greater part of the disease the joint is practically not sensitive to weight bearing. Observation of Nature shows further that the diseased hip joint is extraordinarily sensitive to motion for nearly the entire duration of the disease. Every case not treated mechanically offers evidence for this assertion.

On this observation, my simple mechanical treatment is founded. This consists in obtaining the greatest possible security against movement in the joint, that is, the best possible fixation. I apply no extension, but in extreme cases use suspension for the time being. In most cases it is sufficient to protect a leg, which is sensitive on bearing weight from the shock of the weight. The object of this "physiologic mechanical treatment" is that the diseased joint is sufficiently protected without excluding from function the rest of the limb, which is otherwise healthy. On the contrary, the limb should fulfill the function of weight bearing during the whole course of the disease, regulated according to the amount of sensitiveness at any given time.

The physiologic mechanical treatment consists, in short, of the following measures. During the abduction period of the disease the joint is slightly or not at all sensitive against pressure. Therefore, during this stage, which lasts many months, perhaps a year or more, I simply fix the joint in its pathologic position by applying a firm plaster dressing which is renewed every three or four months. The knee joint remains free and the lower part of the leg is accessible to massage. The skin may be kept clean and healthy by means of a scratching band under the plaster. This fixation protects the joint against motion, especially at night, when the reflex muscle spasm is lessened. During weight bearing the pain is relieved. On the healthy side the shoe is raised to equalize the abduction lengthening. A plaster cast fulfills the purpose of rigid fixation better than a removable "Hülsen-Apparat," made of leather, because the elasticity of the latter allows the joint too much excursion.

With a cast of this sort the child goes about as long as treading on the limb is painless. If walking causes pain I fasten a leather splint to the lower end of the plaster which embraces the leg and foot and which is jointed at the knee and ankle. Thus in walking, the jar is intercepted by the steel sole piece of this lower leg splint, and is transferred to the apparatus, diminishing to such an extent that no pain is brought about. In cases where great sensitiveness prevails, the steel sole is placed somewhat lower so that the leg is in suspension in the apparatus. .Extension is superfluous. As soon as the sensitiveness to weight bearing ceases I give the lower leg its freedom again. In place of the plaster cast, a removable leather splint is applied which embraces pelvis and thigh. One may now begin with massage of the thigh and commence active abductive movements, always with caution, however. It goes without saying that no pain should be caused by these attempts to regenerate the pelvic trochanteric muscles. The exercises used in after treatment should confine themselves to active and passive abduction movements and to passive extension of the joint.

This set of gymnastics is for the purpose of counteracting the flexion-adduction contracture and to give the joint the position of extension as in standing; I call this position *"indifferente streckstellung."*

The joint is never moved in the sense of flexion, or in any other direction than mentioned above; no advantage is given the patient by a very movable joint. Our everyday experience shows that the looser and more movable a healed coxitis joint is, the worse it functionates. Exhaustion quickly supervenes which is augmented to actual pain, loose joints are easily traumatized and readily subject to accidental violence.

Seeing that the bones constituting the hip joint have usually undergone anatomic changes, and that the muscles about the joint are usually insufficient and powerless to properly support the affected joint, it is my opinion that the goal to be striven for in the treatment of coxitis is the position of "indifferent extension," with as much rigidity in the joint as possible, in other words, bony ankylosis of the hip in the indifferent position.

Bony ankylosis is not subject to traumatization, muscular insufficiency is harmless because muscular power is no more required and the danger of the "flexion-adduction" contracture is past.

Patients with such a result of treatment hardly limp at all and are not easily tired.

It is not in our power to modify the course of a case of coxitis that we may be sure to obtain bony ankylosis.

As it was not my place to talk of the operative treatment of hip disease, I have chosen for example cases without pus formation, and ones which could never have offered an indication for operative interference.

CONCLUSIONS.

In conclusion I wish to review in a few words the principles of the physiologic mechanical treatment of coxitis.

Knowing that mechanical treatment is unable to attack the disease (tuberculosis) itself, it must be constituted so that it is ambulatory, so that it allows of a certain freedom of locomotion and the enjoyment of fresh air, thus improving the general health of the patient. This mechanical treatment should not degenerate into an overtreatment, and must not lead to the result that the remaining healthy portion of the leg becomes withered and incapacitated for function.

I call the above described manner and means of treatment the physiologic one because it permits the physiologic function of the leg.

I believe I may assume that you, my honored colleagues, will take great interest in this, my conception of the principles of the rational treatment of coxitis, as these principles differ essentially from those generally accepted in your country. I can recommend my method of treatment, as it is much simpler than all others, and can be used by every physician in the land.

Perhaps I may offer as further recommendation that in fifteen years' experience this treatment has proved itself the best. I believe the simplicity of the method will find favor in the eyes of the practical Americans, and I would consider myself fortunate if I dared to hope to see my views planted in American soil by one or another of my honored colleagues.

THE MANAGEMENT OF PRISON TUBERCULOSIS,

WITH THE AID OF TUBERCULIN AS A DIAGNOSTIC AGENT.*

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The object of this paper is not to give any new facts in regard to tuberculosis or the use of tuberculin, but merely to give the methods used and results obtained in an attempt to combat the spread of tuberculosis from one point of this many-sided question, and in the hope that the suggestions here given will lead to similar work in other institutions of the kind. The question is not one that concerns the welfare of the inmates only, but the community at large. Men who are perfectly well, on entering these institutions, run a greater risk of contracting the diseases than if they remained out, and on leaving the institution a few years later become additional foci of contagion in other communities.

The following work was carried out in the Indiana Reformatory by Dr. H. C. Sharp, physician and surgeon in charge, and myself, during the summer of 1903. The reformatory, which is practically a penitentiary, averages about 950 male inmates of ages varying from 17 to 35 years, whose sentences are from one to twenty-one years. Those inmates who are not employed in the services of the reformatory are contracted out to several manufacturers whose plants are within the walls.

Tuberculosis has always been the chief cause of sickness and death in the institution, the form in which the disease most often manifests itself being the pulmonary and glandular type In many of these cases the diagnosis of tuberculosis was evident, but in a large group of men who complained of cough, expectoration, pains in the chest, gastrointestinal disturbances, weakness, etc, a positive diagnosis was difficult to obtain.

The problem before us was: 1, To diagnose every case of tuberculosis; 2, to separate the tubercular from the non-tubercular, and to take every precaution for the prevention of the spread of the disease; 3, to give those suffering from the disease the best treatment available.

In order to obtain a diagnosis in all cases, it was necessary for every man in the institution to receive a physical examination, and the first question to arise was in regard to the examination of the sputum for the tubercle bacilli. If this were carried out it would mean a task too great for practical purposes, and moreover, a certain number of very early cases might be overlooked in which tubercular sputa had not begun to appear, and also in cases where tuberculosis existed in other parts of the body. Therefore, we made no routine sputum examinations, but relied altogether on the administration of tuberculin to give the diagnosis in all doubtful cases. Many cases definitely tubercular, who were not running an elevated temperature, were given tuberculin in order to corroborate our results.

To begin with, every man in the institution was examined as follows: He was asked how he was feeling at the present time and when he was sick last. The following questions referred to the past as well as the present regarding pain, pain in the chest cough, expectoration. bloody expectoration, hemorrhages, night sweats, loss of weight and strength, pain in stomach, indigestion and condition of bowels. He was stripped to the waist and examined for enlarged glands, symmetry and expansion of chest, vocal fremitus, percussion and auscultation over the apex, back and front of chest. If any of the above symptoms were present, or if any one sign of pulmonary disease was found, no matter how slight, such as change in pitch or quality of note, harsh breath sounds, râles or prolonged expiration, the man was put on the list to receive the tuberculin test, and notes were kept as to the conditions found In taking the above history the question of sputum was found to be very unsatisfactory. In this part of the country almost everyone suffers more or less with nasopharyngeal catarrh, and the average man found difficulty in telling whether it came from his lungs or his pharynx. As the great majority of men examined gave a history of expectoration, the above was not

GROUP 1.

Those giving symptoms pointing to pulmonary tuberculosis but no signs.

Number of Convict	Pain in Chest	Cough	Bloody Expectoration	Night Sweats	Loss of Weight	Chronic Indigestion	Miscellaneous Symptoms	Temperature of Reaction	Maximum temp Hrs after Injec
3819	+	+				+	Constant Headache	103 2	6
3516		+			+	+		104	10
2031	−	+		+		+		102	5
4060			+					100 2*	9
3687	−				+			102 2	13
3610		+	+					101 2	11
3801	+	+	+					101 2	9
3876			+					101	8
2035	+	+	+			+		101 2	10
3860	+		+			+		101	8
3423	+		+					102	5
4199	+	−						103	6
3500	+	+	+					101 4	8
3913	+		+					101 4	8
3432	+	+	+					102 2	9
2910	+	+	+					102 2	6
3612	+	+	+		+			103 4	13
3155	+		+	+	+	+		102 3	20
4076	+	+	+					102 1	6
3778		+	+	+				102 4	3
3949	+	+	+	+				101	6
4169		+	+					101	5
3465	+	+				+	Chronic Diarrhea	101	16
2929			+			−	Chronic Diarrhea	100 *	7
3258	+	+	+		+			100 4	9
4098			+	+				101 2	9
3525		+	+	+			Chronic Diarrhea	101 4	9
3356		+						101 2	17
3735		+						100 4	13
3920			−					100 *	13
3979		+						100 4	9
3544		+		+				102 2	11
3286		+						100 4	12
3878	+	+		+		+		101	18
4138	+			+				103 4	17
3429			+					102 8	20
4176	+	+		+		+		102 4	17
4030	+	+	+		+			103 4	11
3347	+	+	+					101 4	10
4215	Had hemorrhage 3 years ago						No symptoms at present	102 4	10
1738			−		+			103	19
4009	−	+		+		+		103	13
3240	+	+						101 2	15
4007		+	+					101	13
4051		+	+	+	+			102	14
4078		+	+	+	+			100 4	11
3522		+	+			+		101 2	13
2878	+		+					101 4	13
3705		+	+					102 4	17
3666	+	+	+					101 2	17
3883	+	+		+	+	+		103 6	12
2807		+					Had measles 4 months ago	102	15
3184	+							104	18
3247	+	+		+				105	9
3921	+							101 2	13
3260	+						Very weak	101	10
3933		−	+					101 2	10
3338		+	+					100 2*	14
3541	+	+			+			100 *	7
59	33	41	36	15	11	13		Total	

*Temp had been subnormal so that the rise obtained was over 2° associated with febrile symptoms taken into consideration unless it had at some time been bloody.

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* Under the direction of H C Sharp physician and surgeon of Indiana Reformatory

Before starting the tuberculin test it was thought best to experiment with the dosage. The dose for diagnostic purposes was from 5 to 10 milligrams.[1] The larger dose was first tried, diluted in 1 c.c. of water, on a patient with definite tubercular adenitis, and for a control test another man, who was apparently perfectly healthy, was chosen to receive the administration at the same time. The former gave a typical tuberculin reaction with a rise of temperature of 104 degrees, while the latter felt perfectly well and his temperature remained normal. Other tubercular patients were tested with smaller doses of tuberculin, but the reaction was not so definite as when the 10-milligram dose was given; therefore, this maximum dose was employed throughout the series of tests.

In giving the tuberculin test nineteen men were tested at a time. They were taken into the hospital and a one hour temperature record was taken for about 36 hours so that a morning and evening temperature could be recorded. If any of the men were running an elevated temperature the test had to be postponed until it became normal, the tuberculin reaction being valueless unless given during a period of apyrexia. After the temperature record had been taken for the proper length of time 10 milligrams of tuberculin diluted with 1 c.c. of distilled water was injected deep into the left deltoid, the skin having been previously washed with soap and water, ether and alcohol. The injection was made at midnight so that the reaction could be watched on the following day.

Out of the 965 men in the institution who received a physical examination, 24 were found to be definitely tubercular and were not tested with tuberculin. Two hundred and seventy-eight men gave either one or many of the symptoms or signs of tubercular disease and received an injection. Of course, all of these were not thought to be tubercular, but by testing every suggestive case, no matter how slight his symptoms or signs, seemed to be the only sure way of picking out every case of tuberculosis. Out of this total number tested, 102 gave a definite tuberculin reaction, a definite reaction consisting in a rise of temperature two degrees above the maximum temperature previously recorded.

GROUP 2.

Those giving both symptoms and signs suggestive of pulmonary tuberculosis.

Number of Convict.	Pain in Chest.	Cough.	Bloody Expectoration.	Night Sweats.	Loss of Weight.	Chronic Indigestion.	Miscellaneous Symptoms.	Percussion.	Auscultation.	Miscellaneous Signs.	Temp. of Reaction.	Maximum Temperature hrs. after Injec.
2609	+	+	Vom. Bl'od	+	. . .	+	. . . .	Dull right apex.	Harsh breathing over both apices	. . . .	103	8
3908	+	+	. . .	+	. . .	. . .	. . . .	Right front higher pitch.	. . . .	. . . .	100.2	3
1529	+	. . .	*	. . .	. . .	. . .	*Had one hemorrhage.	Dull left apex.	. . . .	. . . .	101	15
3832	+	+	+	. . .	+	. . .	. . . .	. . . .	Harsh breath sounds over both lungs.	. . . .	102.4	12
3988	. . .	No symptoms.			. . .	. . .	. . . .	. . . .	Rough breath sounds over right apex.	. . . .	101.2	17
3894	. . .	+	+	. . .	. . .	+	. . . .	Dull right apex.	Sibilant râles over both lungs. .	. . . .	103.2	11
3194	+	. . .	. . .	. . .	. . .	. . .	. . . .	. . . .	Sibilant râles over both lungs . .	. . . .	100.2	19
2137	No pulmonary symptoms.			+	+	. . .	. . . .	Dull right apex and upper left lung.	Breath sounds harsh over dull area.	. . . .	101.4	14
3435	+	. . .	. . .	. . .	. . .	. . .	. . . .	Higher pitch over left apex.	Sibilant râles over left apex. . .	. . . .	104.2	16
2934	+	+	. . .	. . .	. . .	+	. . . .	Dull area over left side.	. . . .	. . . .	103.4	11
2966	+	+	+	+	+	+	Very weak	Left apex higher pitch. .	Harsh breath sounds over left apex and side.	Vocal fremitus mr. on lt. side	102	16
4225	. . .	No symptoms.			. . .	. . .	. . . .	Higher pitch over left apex and side.	. . . .	. . . .	101.4	5
3744	+	+	. . .	. . .	. . .	. . .	. . . .	. . . .	Harsh breath sounds and sibilant *râles over both lungs.*	. . . .	101.2	7
3099	+	. . .	+	. . .	. . .	. . .	. . . .	. . . .	Harsh breath sounds, both apices	. . . .	102.6	18
4139	No pulmonary symptoms.			+	+	+	. . . .	Right apex higher pitch.	Tubular breathing over right apex.	. . . .	102.4	11
3325	. . .	+	+	+	. . .	. . .	. . . .	Dull over right side . . .	Harsh breath sounds over right side and apex.	Dim. exp. of right side.	105.2	14
	Had right-sided pleurisy 1 year ago.						Recovered.					
2364	. . .	+	+	. . .	. . .	+	Chronic diarrhea.	. . . .	*Harsh breathing over both apices*	. . . .	100.4	17
3981	+	. . .	. . .	. . .	. . .	. . .	C'nstipation alternating with diarr.	Higher pitch over right apex.	Harsh breathing over right apex. Sibilant râles over both lungs.	. . . .	100.4	8
3306	+	+	+	. . .	+	+	Chronic diarrhea.	Abdomen distended and tympanitic; no fluid.	Breath sounds harsh over right apex.	. . . .	101.2	16
3997	+	+	+	. . .	+	+	. . . .	Left lung and apex higher pitch.	. . . .	. . . .	104.2	2
3776	+	. .	. . .	. . .	+	+	. . . .	. . . .	Expiration prolonged over left apex and side.	. . . .	101.4	15
3631	+	+	+	. . .	. . .	+	. . . .	. . . .	Harsh breath sounds over left lung.	. . . .	102	20
2234	+	+	. .	. . .	. . .	. . .	. . . .	Higher pitched over right side.	Enfeebled breath sounds over right side.	Sl. frictions rub at base.	102.2	13
3756	+ in both sides for last 5 months; weak and anemic.							June 12, '03, acute pain at base of both lungs. Friction rub at both bases that lasted for a week. August 3. '03, pain continued, rub heard, tubercular reaction 105 4 13 *hours after injection* (delirious). Next day pain not so severe. September 19, '03, very little pain since day of reaction; returns *occasionally and is* slight. *Patient good color and says that he feels* O K. *Fine friction rub at* lower right base.				

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[1] The product used was the Mulford tuberculin. (It is necessary to mention this, as the dose varies greatly with the product used.)

accompanied with at least one febrile symptom, such as chill, headache, pain in back, etc.

These 102 men who gave a positive reaction may be divided into the following groups:

Group 1.—Those giving symptoms of pulmonary tuberculosis, but in whom no physical signs could be obtained after repeated examinations made before, during and after the tuberculin reaction.

Group 2.—Those giving both symptoms and signs of pulmonary tuberculosis.

Group 3.—Those without symptoms and whose only sign was enlarged glands.

Group 4.—Miscellaneous cases.

In this first group of 59 cases, 41 gave a history of cough, 36 gave a history of the sputum being bloody or blood tinged at one time or another, 33 of pains in some part of the chest, 15 of night sweats, 13 of chronic gastrointestinal disturbances and 11 gave a history of loss of weight.

It will be noticed that several of the maximum temperatures recorded are only between 100 degrees and 101 degrees, and the objection might be raised that this elevation is not sufficient to contribute a definite tuberculin reaction. It was a curious fact that the great majority of the men ran a temperature of about 1 degree below normal, for which we could find no explanation. However, a rise from this subnormal temperature to 100 degrees gave the required amount to constitute a reaction. As mentioned above a positive reaction consisted of a rise of temperature 2 degrees above the maximum temperature previously recorded, associated with at least one febrile symptom.

GROUP 3

Those where only signs of tuberculosis was enlarged submaxillary or cervical glands

Number of Convict.	Local Reaction Tender and Painful Glands.	Temperature of Reaction	Maximum Temp Hours after Injection
4059	+	164	8
4029		101	6
4004		101	15
3945		102 4	11
2451	+	103	15
3474		102 6	11
2024	—	105	11
4246		101	9
3569		104	12
3707	+	104	12

Total, 10.

Ten out of the number tested gave a slight rise of temperature, but not enough to constitute a definite reaction. In these a second injection was to be made at a later time, a report of which has not been made.

SUMMARY.

From the above results we feel very strongly that as a diagnostic agent tuberculin is of great value, not only in surgical tuberculosis, but in the early pulmonary form, where the finding of the tubercle bacilli in the sputum is very difficult or even impossible. In none of our cases, whether a positive reaction was obtained or not, did we find any ill effects following the administration of tuberculin, and this corresponds with the results of others, showing that the danger from the use of tuberculin is practically *nil*.

The result of our examination of 965 inmates showed 24 to be in an advanced stage of tubercular disease, and 102 who gave a definite tuberculin reaction, making a total of 126, or nearly 13 per cent.

PROTECTION OF THE NON-TUBERCULAR.

The next question was the protection of the non-tubercular, and the method of treatment of those infected with the disease. In regard to the prophylaxis our plans were as follows: The tubercular were separated from the non-tubercular by giving them a separate cell house and having them eat at separate tables. Receptacles for sputum containing sawdust dampened with a solution of crude carbolic acid, were placed in convenient locations throughout the grounds and shops. The dust about the grounds was done away with by sprinkling once a day. All sweeping in the cell houses and halls was done after first sprinkling sawdust wet with a solution of crude carbolic acid. This gave the whole place a strong odor of carbolic acid, but it is much more agreeable than the musty and dirty odor that formerly prevailed.

TREATMENT OF THE TUBERCULAR.

As to the treatment of the tubercular, those who were able to work were given an occupation suitable to their condition, while those too weak to work were given benches in a sunny part of the grounds where they could sit out of doors all day. All who were able were compelled to take regular exercise. Better food was supplied, and drugs administered such as cod liver oil, syrup of the iodid of iron and others as the case required.

GROUP 4

Miscellaneous tubercular cases

Number of Convict.		Temp of Reaction.	Maxi'um Temp Hrs. after Injec.
[illegible]	[illegible] no physical signs . .	102 4	11
[illegible]	[illegible] measles 4 months ago	103 4	11
[illegible]	[illegible] rcular peritonitis	100 6	10
2993	Signs and symptoms of tubercular peritonitis Local reaction, abdominal pains and tenderness . .	102 6	8
3800	Tubercular abscess in muscles of back . .	104 6	12
3077	Arm amputated 1 year ago for tuberculosis. No local [illegible] at present. . .	103	18
[illegible]	[illegible]	101 6	10
[illegible]	[illegible] g standing .	102	15
[illegible]	[illegible] ne with discharging sinus . .	102	9

9 cases total.

The therapeutic use of tuberculin has not yet been tried, but as to its value one case is very suggestive. Convict No. 3.756 (see chart of Group 2), who had suffered with bilateral pleurisy with constant and severe pain for two months, on receiving tuberculin, gave a reaction of 105.4. A few days later his pain was very much better, and six weeks later he said that the pains seldom bothered him, and he was feeling better in every way. However, a friction rub still remained.

CONCLUSIONS.

A year has now passed since the above work was done, and while we do not possess accurate statistics as to the number of inmates afflicted with tuberculosis at present in the institution, many facts go to show that there has been a decrease in the disease. During the year ending Aug. 1, 1904, there have been ten deaths from tuberculosis, which contrast favorably with the eighteen deaths that occurred the previous year. After making our tuberculin tests we found that the great majority of men who gave a reaction were those who were constantly coming to morning sick-call. During the past year the total number of inmates attending sick-call has been 40 per cent. less than the year before.

These few facts are enough to convince us that we are working in the right direction toward the management of prison tuberculosis, and we feel that the results thus far obtained fully repay us for our work.

TONSILLECTOMY, THOROUGH, PAINLESS AND SAFE.*

E. FLETCHER INGALS, M.D.
CHICAGO.

"What is worth doing at all is worth doing well," is a truism especially applicable to surgical procedures, for no operation should ever be undertaken excepting for the patient's best interests. We are all searching, therefore, for something that is better, whether it be new or whether it be simply a modification of the old. That the ancient operation for tonsillectomy is susceptible of improvement goes without saying when we consider some of the important conditions and when we witness some of its lamentable results. An unusual case which recently came under my observation induces me to bring up again this well-worn subject in the belief that there are many surgeons, even among laryngologists, who are not familiar with the technic of an operation that to me appears more thorough and much safer than the methods generally adopted.

The case referred to was that of a gentleman about 30 years of age who had suffered from frequent attacks of severe tonsillitis and in whom both tonsils were enlarged to the size of a small English walnut. From the history there was no doubt of the desirability of removing these glands, but on inspection I discovered on both sides large branches of the carotid artery pulsating at the base of the tonsil immediately beneath the mucous membrane, so that the operation with a tonsillotome, which might have been easily done, would have been attended with great risk; whereas the operation that I have in mind and that I prefer, for nearly all cases, could have been done with safety.

In any case of hypertrophy of the tonsils the questions to be considered are: Is an operation necessary? And, what operation would yield the best results in this particular case, with the minimum amount of danger and discomfort to the patient?

In the great majority of cases in which the tonsil is not larger than an almond, provided it is not subject to frequent acute attacks of inflammation, no operation is desirable; but in many cases tonsils even much smaller than this by reason of acute attacks are a source of danger and of great discomfort to the patient; therefore, their extirpation becomes important. There are some tonsils even larger than this that give the patient no inconvenience and that never will become a source of any considerable danger; but in the majority of cases these hypertrophied glands, because of their liability to infection and acute inflammation, are a constant menace and should, therefore, be removed.

In many cases the so-called submerged or buried tonsil is scarcely perceptible on inspecting the fauces when at rest; but they are rolled out so as to show considerable dimensions with the act of retching. Whether these be small or large, if subject to frequent acute attacks of inflammation, they should be removed.

In children we may reasonably expect hypertrophied tonsils to gradually atrophy and disappear before puberty, but it should be remembered that in the meantime they offer an open portal for the entrance of numerous germs of disease, and in the majority of cases they are associated with hypertrophy of the pharyngeal or Luschka's tonsil, with all its painful results; therefore, when a child has suffered two or three attacks of acute tonsillitis, whatever the size of the glands, it is usually best to advise their removal.

The operation to be selected necessarily depends on various conditions which may be present in individual cases. The old operation performed by seizing the tonsil with a vulsellum forceps and dissecting it out with a bistoury is now seldom employed, but it would undoubtedly yield better results than frequently obtained from some more modern methods. An operation by means of some one of several good tonsillotomes is best in adults, and sometimes also in children in those cases where the tonsil is not adherent to the anterior pillar of the fauces and when it is of such form and in such position that it can be readily engaged and thoroughly removed; in children, in the majority of cases, Luschka's tonsil is also enlarged and should be removed at the same time, which fact may induce us to adopt some other operation. Furthermore, we should not forget that the fright and pain to the little one caused by tonsillectomy is often fully as great as that an adult would suffer from amputation of the arm.

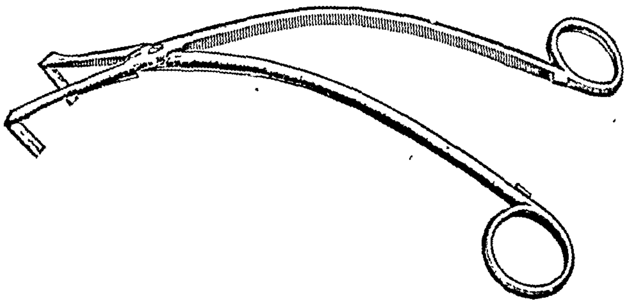

Fig. 1.—Tonsil separator.

In cases where the tonsil is hidden by the adherent anterior pillar of the fauces, a thorough operation is impossible with the ordinary tonsillotome unless the gland is first lifted out with forceps, and then serious hemorrhage is likely to result either from division of some large blood vessel within the tonsil or from cutting the anterior pillar. In these cases the glands may be cut out with biting forceps, but this operation is peculiarly liable to cause serious bleeding. In such cases we often resort to repeated cauterization, with gradual destruction of the gland rather than incur the dangers of tonsillectomy. Such cauterization, when properly performed and when the gland is not large, usually yields satisfactory results. It has also been recommended to dissect out these glands with the galvano cautery, but the large area that is burned in this operation causes much pain and such extensive cicatrices that this procedure appears to me seldom justifiable.

The operation that I wish to recommend appears to me the best in most cases in children, and in many cases of the so-called buried or submerged tonsil in adults. It was first recommended by me several years ago and has since been adopted by a considerable number of laryngologists, but I fear that the technic is not thoroughly understood by most laryngologists or general surgeons. The instruments required for the operation are a mouth gag, tongue depressor, blunt hook, tonsil forceps, long pincette and two snares with wire. One should also have proper sponges. In most cases one should also have at hand Lowenberg's forceps or some modification of the same for removing the pharyngeal tonsil, or such other instrument as one may prefer for this purpose. I have also for use, when Luschka's tonsil is to be removed, a nasal bone forcep that I pass through the nostril to the nasopharynx for removing pieces of Luschka's tonsil from the vault of the pharynx close to the choanæ, which may be difficult to catch with the instrument in the nasopharynx; and also for the purpose of opening the posterior nares, which will be found considerably contracted in a considerable number of cases. Any good mouth-gag may be used, but I prefer the Allingham, or some of its modifications. Any satisfactory tongue depressor may be employed. I formerly used, for separating the anterior pillar of the fauces from the tonsil, a blunt hook originally designed for a palate retractor, but I have recently had made for this purpose a much better instrument, with two blades, which when closed and locked form a blunt hook. (Fig. 1.) When the catch is loosened the blades may be opened out so that the two ends forming the blunt hook thoroughly separate the anterior pillar of the fauces from the tonsil by a single movement, thus considerably facilitating the operation. The tonsil forceps is an instrument that I had made for this special purpose. (Fig. 2.) It is about eight inches in length, with a catch on the handles so that it can be locked after the tonsil has been seized. The blades of this forceps turn at an angle of 45 degrees to the long axis. They are nearly an inch in breadth at their broadest part and are rounded down toward the end so that when the loop of wire has been slipped over their broadest part it must necessarily slide toward their end to the base of the gland. The end of the blade consists of two blunt points, each about an eighth of an inch in width, separated about three-eighths of an inch from each other by a crescentric depression, which leaves an elliptical opening about three-eighths of an inch long by one-fourth inch in width, when the points of the two blades are brought into contact. At Dr. O. T. Freer's suggestion these forceps are sometimes made with three points at the end of the blade. The instrument is so made that when the handles are locked the points of the blades press firmly against each other, and the handles have enough spring to allow for what we might call the root of the tonsil between the ends of the blades. The pincette is about eight inches in length; it is designed to hold the end of the uvula to prevent it from being caught in the loop of the snare. The snare for removing the tonsil is the same as used for nasal polypi, but I have the handle five inches in length so that it will not be necessary to shorten the wire before the tonsil is cut off. With the snare I use No. 5 steel piano wire. For removing the pharyngeal tonsil I like best John N. Mackenzie's modification of Loewenberg's forceps. The nasal forceps (Fig. 3) are the bone forceps that I have recommended for trimming up spicula of bone in operations on spurs of the septum. I give the patient a general anesthetic and prefer chloroform for children. The patient is placed in the prone position, with the face drawn out over the edge of the table, in which position there is no danger of blood flowing into the trachea. I prefer removing the right tonsil first, the patient being placed, when daylight is used, in front of a window; I seat myself, with my left hand toward the head of the table, on the opposite side of the table from the window, and reflect the light into the throat from a head reflector. After the first tonsil is removed the patient's face is turned toward the window, the face being kept downward during the turning so that no blood runs into the trachea, and the reflector is dispensed with. It is usually more convenient to use artificial light when we have an electric lamp that can be worn on the forehead, but even then I prefer to remove the right tonsil first, because this leaves the patient, when the left tonsil has been removed, in the position with my right hand toward the head of the table, in which I want him for removal of the pharyngeal tonsil.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

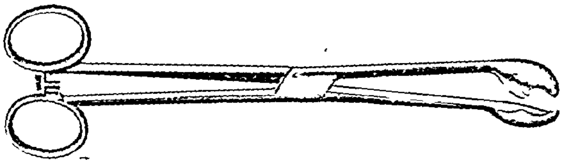

Fig. 2.—Tonsil forceps.

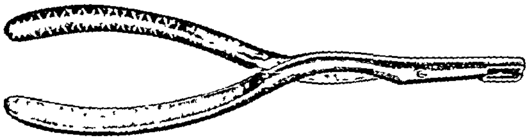

Fig. 3.—Nasal bone forceps.

TECHNIC OF THE OPERATION.

When anesthesia is nearly complete the patient is placed in the prone position, and the mouth-gag is placed between the jaws on the upper side of the face, and opened as widely as necessary. It is usually found necessary to continue the anesthetic for a few minutes afterward to complete the anesthesia, because these patients do not breathe well on account of the nasopharynx being filled with adenoid growth, and they do not come fully under the anesthetic until the gag is put in to hold the mouth open. For the right tonsil, sitting with my left hand toward the patient's head, I introduce the blunt hook between the anterior pillar of the fauces and the tonsil, while the tongue is kept down by the depressor held in the left hand. I then remove the tongue depressor and open the blades that terminate in the blunt hook widely enough to separate the anterior pillar thoroughly from the tonsil, by which act the tonsil is freed from a considerable part of its bed, so that it may be easily caught by the forceps. In cases where the anterior pillar is not attached to the tonsil this is not necessary, but the gland may be grasped at once with the tonsil forceps. In applying the tonsil forceps it is usually best to have an assistant press the tonsil inward with the fingers applied just back of the angle of the jaw, so as to make the gland as prominent as possible. In seizing the tonsil one should pass the blades of the forceps beyond the anterior pillar; otherwise it is apt to be slightly injured. When the tonsil has been seized the handles of the forceps are locked, the tip of the uvula is then secured with the pincette, which may be held by an assistant, and the loop of the wire of the snare is slipped over the handles and carried along them into the mouth and over the end of the forceps. If the tonsil is of fair size, so that it is held firmly, it may now be drawn on and lifted up so as to make certain that the wire slips under it; otherwise a little care will be necessary to make sure that the wire is beyond the broadest part of the blade, so that when it is tightened it will slide down to the end of the blade and slip under the gland, to cut it off at the lowest point. The wire loop is now drawn tightly about the base of the tonsil by a moving bar on the handle of the snare; the pincette is then removed and the milled wheel on the handle of the snare is brought into use for the final tightening of the loop. In nearly all cases, if care has been taken in grasping the tonsil, every portion of the gland will be removed at once, and if it has not been necessary to separate the anterior pillar the bleeding will not have exceeded a dram. The patient is then turned so that the face projects over the left edge of the table, the blood is wiped out of the mouth, the left tonsil is caught and extirpated in a similar way; then, if the pharyngeal tonsil is enlarged, it is also thoroughly removed. In the latter case the after-treatment consists of the application through the nares four or five times a day of an antiseptic oily spray or of a 1-4,000 solution of adrenalin chlorid or suprarenalin in a saturated solution of boric acid, and if the child is large enough an antiseptic gargle is used several times daily. When only the faucial tonsils are removed it is desirable to have the throat sprayed or gargled with some non-irritating antiseptic about once an hour for two or three days, and afterward about half as frequently until healing is complete. The child should be kept in the house for nearly a week, for the whole wound can not be expected to heal within less than ten or twelve days.

34 Washington Street.

DISCUSSION.

Dr. G. Hudson Makuen, Philadelphia—Some years ago I saw Dr. Ingals do this operation in his office and was so impressed with the thoroughness of it that I immediately secured the instruments. The first case on which I operated was a child of five years, and I removed the tonsil with great satisfaction, but three or four days later, to my surprise, I found that the child had no uvula. I was interested in hearing that Dr. Ingals has had similar experiences and I should like him to explain how and why these accidents occur.

Dr. William E. Casselberry, Chicago—In speaking of tonsillectomy before my classes, I divide it into tonsillectomy in children and tonsillectomy in adults. In children I divide again into operations with general anesthesia and those without it. Take first tonsillectomy in children with general anesthesia, I determine whether to use the snare or other instrument, observing whether the tonsil is of the pedunculated or of the submerged type. It is with the pedunculated type that I have found the snare particularly applicable. When they are loose and project well toward the median line, not being tied down to the triangular space, I find very little difficulty in enveloping them with the snare and making the enucleation of the tonsil. The method adopted in such cases on children under general anesthesia is by means of the curved vulsellum forceps, which occupies much less space than the one exhibited. I use No. 7 piano wire because it maintains its resiliency and cuts sufficiently well. The loop is applied to the tonsil and the vulsellum forceps takes it up, the tonsil is drawn into the loop of the snare; the same procedure is then repeated on the opposite side. This operation is usually done in conjunction with the removal of adenoids. In the second type of cases with general anesthesia we more frequently find the flat, adherent or submerged tonsil. I often find it difficult to break up these attachments and for this class of cases I believe the instrument exhibited would work admirably. All the easy cases seem to go to other men, leaving the more difficult cases for those of us who are specialists. They are usually divided into segments, one-half of which is adherent to the anterior pillar and the other to the posterior pillar. I find also that the lobe is higher developed and is covered with muscular tissue. I have not found it wise to use the snare to a great extent in these cases, but prefer to dissect them out. If there is any considerable part that the tonsillotome will take in bulk, I use that first and then supplement it with the forceps in order to make a thorough tonsillectomy.

Dr. J. A. Stucky, Lexington, Ky.—I do not think I have used the guillotine a dozen times in the last three years. I use the snare entirely. I find I can do a cleaner operation in the first place, and that it diminishes the danger of subsequent hemorrhage. There is one difficulty I hope Drs. Ingals and Casselberry will tell us how to overcome; I refer to the necessity for an assistant to hold the tongue down. I find I have trouble in removing the right tonsil, where I have to hold one hand over the other; I need an assistant to hold the tongue down and use the forceps. It is astonishing how dexterity develops in the use of the snare, and after using it a number of times with a heavy wire it will be found much superior to the guillotine or scissors.

Dr. George L. Richards, Fall River, Mass.—I like this method very well, but, except in children, I do my operations without anesthesia. I have done it a number of times by injecting the tonsil with local anesthetics, using the Schleich anesthesia tablet, the operation is practically painless. I use the vulsellum forceps, drawing the tonsil through the loops and maintaining traction as the snare is tightened. The form of tonsil snare with a groove in the side of the ring, in which groove the wire loop is formed, answers admirably. It is somewhat awkward to use, but allows one to exert much firmer pressure against the side of the throat without bending of the wire loop, and is sufficiently powerful for all tonsils. I have found the tonsillar wound to be much more painful and the healing much slower than after operations with the guillotine. This would seem of necessity to be the case, as a wound made with a sharp instrument like the knife will heal quicker and be less sore than one made with a No. 7 or No. 8 piano wire.

Dr. George B. Wood, Philadelphia—I have had some experience in removing tonsils with a snare, and I want to indorse what Dr. Richards says about the reaction following the operation. I have found it to be almost threefold as great as that following the use of the tonsillotome.

Dr. P. S. Donnellan, Philadelphia—As my experience with the treatment of enlarged tonsils becomes more extensive, I get more and more away from the use of the guillotine and use the snare or the forceps and scissors. I do not believe that any one operation can be used in every case. I believe the snare operation to be one of the very best.

Dr. S. H. Large, Cleveland—Two months ago I recorded 100 cases of operations on the nose and throat with ethyl chlorid anesthesia, but the guillotine was used. This method of anesthesia would not be sufficiently prolonged. We had no bad results and the patients experienced no unpleasant symptoms in taking it.

Dr. E. Pynchon, Chicago—In my experience the indications for this operation can be classified into, first, those appreciated by the patient, and secondly, those recognized by the physician. The call for operation may be recognized by observing the escape of secretions from the diseased tonsils, or by some condition of the gastrointestinal tract, due to the swallowing of such secretions. The size of the tonsil is no criterion for its removal. I understand Dr. Ingals to advocate the use of a general anesthetic. I think the dangers of anesthesia are sufficiently grave to contraindicate its use except in cases where it is absolutely necessary. If the patient is 13 years old, or older, I invariably use cocain. At this time we are much at sea as to the physiology of the tonsil. I have operated on as many as a thousand cases and never yet have had a patient afterward make any complaint due to the loss of the tonsil. As to the line where the separation from the anterior pillar should be made, I would call attention to the line of demarcation where the redness of the tonsil changes to the pinkness of the pillar; that is my line of separation. As to the method of procedure, I am guided by the age and tolerance of the patient. With small children I do a tonsillotomy. The tendency of the snare is to cut along the line of least resistance and, therefore, the dissection must be made sufficiently deep to leave only a pedicle remaining. The greatest disadvantage of the cutting operation in adults is the matter of hemorrhage, and for that reason a bloodless operation is better if it can be done. Dr. Ingals mentions the use of electricity; by the use of the cautery I am frequently able to do a bloodless operation. Dr. Ballinger of Chicago has been using the snare a great deal, and he says that one of the worst hemorrhages he ever had was following the use of the cold snare.

Dr. Otto J. Freer, Chicago—I have done this operation many times and think that it is an ideal method for the removal of the class of tonsils called buried or submerged. It takes these out so cleanly from the very bottom of the tonsillar niche that nothing could be more perfect. It removes projecting hypertrophied tonsils quite as well and in children, where adenoid vegetations are to be cut away simultaneously under an anesthetic, it is the method I prefer to all others, but where projecting tonsils alone need ablation the tonsillotome is preferable. I added the third tooth to the forceps because I found that the two-pronged one slipped off from the tonsil at times. The kind with the third tooth does not let go. I also cut off the uvula once, but since I have used Dr. Ingals' uvula forceps I have no fear of a repetition of the accident. The operation is a good one for submerged tonsils, because the tonsillar forceps is a strong instrument and may be crowded in above the velar lobe and under the bottom of the tonsil and thus be made to lift the tonsil completely from its bed. My greatest trouble used to be the application of the snare, because I seized the forceps with it instead of the tonsil. To overcome this I devised a snare guard which contains the wire while it is being carried over the forceps on to the tonsil. The wire used in this guard should be No. 6 piano wire, so that it may have stiffness enough to be crowded into the groove of the guard to keep it from slipping out. Many other operators have mentioned to me this same trouble of catching the forceps with the snare. I never have the tonsil pressed up, but prefer to crowd in beneath it with the tonsillar forceps. As to the anesthetic, I prefer ether to chloroform because I have had several cases where the latter anesthetic caused me much alarm. I have never had any trouble from ether and find that children often go to sleep more rapidly under ether than under chloroform. Tonsillectomy by cautery dissection is a bloodless operation so far as its immediate results are concerned, but I know from personal experience that secondary hemorrhages of an alarming nature quite often follow it.

Dr. Robert C. Myles, New York City.—Dr. Ingals has originated and explained the use of the snare, and when we shall have mastered all the details, this operation will be considered the best of all. He speaks of separating the anterior pillar from the tonsil. If the throat be examined carefully, it will be found that the tonsil does not touch the anterior pillar except at one spot; in the upper portion inferiorly it is not more than half an inch from the anterior pillar. If the tonsil can be cut from its surroundings, mucous membrane and investing sheath, there will be very little reaction. This is the most perfect operation, but it is limited in its application.

Dr. J. A. Stucky, Lexington, Ky.—What is Dr. Ingals' experience with the self-retaining tongue depressor?

Dr. E. Fletcher Ingals—I have one, but never use it. I did not speak of the benefits of a general anesthetic in the case of hemorrhage. I formerly thought a hemorrhage would never occur when the tonsils were removed with the snare, but I had one case in which it would have been very difficult to control had not the patient been under a general anesthetic which enabled me to grasp and tie the bleeding point. I think the uvula gets into the snare, especially in cases where the tonsils are large and in close apposition. I cut it off in my early cases before I adopted the plan of catching it with a pincette, but never have the accident occur now. One of the speakers suggested that there would be great difficulty in using the forceps in submerged tonsils, but it is in these very cases that it is of the utmost value. With the use of the hook, or tonsil dissector, the glands are dissected out with one motion, and they can then be easily grasped with the forceps. The anterior pillar should be caught with the hook at the upper part at the point where it is in apposition with the capsule. I very rarely use an assistant excepting to give the anesthetic. I used to have some one press up the tonsil just as I caught it with the forceps, but I seldom do this now, as in nearly all cases it is easy to catch it without. The use of heavier wire in order to avoid catching the forceps might possibly be some help. I have had the wire catch the forceps a good many times, but when the tonsil is large enough to be grasped firmly it can be lifted out so that the wire loop must necessarily slip under it. I am not sure about the reaction being greater by this method, but it has not seemed so to me.

Special Article.

IMMUNITY.

CHAPTER II.

INFECTIOUS ETIOLOGY.

The microbic cause of a disease must be in hand before any logical attempt can be made to prepare an immune serum for the disease. It is not in all cases necessary that the organism be cultivated artificially, however; the conditions in rinderpest may be cited in which the body fluids of a diseased animal, known to contain the infectious agent, are used for immunization, although the microbe itself can not as yet be cultivated or recognized.

Koch's Laws.

There are so many possibilities of error, and so many errors have actually been made in regard to infectious etiology, that certain requirements in the way of proof are now habitually demanded before an organism can be accepted as the cause of a disease. These requirements are most frequently expressed in the form of Koch's laws, which may be stated as follows: 1. The suspected organism must be found constantly in the proper tissues of an animal suffering from the disease, or which has died from it. 2. The organism must be cultivated artificially in a pure state. 3. It must be possible to reproduce the disease in a suitable animal by inoculation with the pure culture. 4. The organism must again be cultivated in a pure state from the tissues of the experiment animal.

Agglutination Test.

Since these laws were formulated another procedure has been developed which may give valuable evidence as to etiology. This pertains to the agglutination test, or as we speak of it in connection with typhoid fever, the Gruber-Widal reaction. This principle, that in the acquiring of immunity to a microbic infection the serum of an individual gains in agglutinating power for the micro-organism, has been found to hold true in many infections. Consequently, if one has in hand the specific micro-organism for a disease, he would expect the patient's serum to have a stronger agglutinating power for this micro-organism than for others which were accidentally present; and this power would also be greater than that possessed by the serum of one who had not had this particular disease. In spite of some possibilities of error this test has been of distinct value in enabling us to recognize the specific microbe of a disease, as was the case in the identification of the germ of epidemic dysentery (Shiga).

Obstacles to Koch's Laws.

All Koch's laws have not been complied with in certain cases, because of various difficulties which have been encountered. First, the pathogenic protozoa can not be cultivated on artificial media (we must except the success of Novy and McNeal with certain trypanosomas); second, certain bacteria which may be found constantly in a given disease (spirillum of recurrent fever) have not been cultivated artificially; third, there are a few diseases which are peculiar to man and accordingly can not be reproduced in experiment animals (leprosy, influenza, scarlet fever, measles, etc.); fourth, some infectious agents are pathogenic for experiment animals, but do not reproduce in them a clinical or anatomic condition identical with that found in the original animal (typhoid).

Furthermore, failure to comply with all the requirements enumerated does not in some cases disqualify the organism as the causal factor. If an organism is found constantly in characteristic sites in a given disease and not in other infections, and if at the same time other microbes are not present or are present only by accident, there could be little or no hesitation in accepting this organism as the cause of the disease, even if it were impossible to cultivate it or to transfer the disease to animals. The typhoid bacillus has been cultivated from characteristic foci (stools, blood, spleen, urine, rose spots) in such a large number of cases, and the bactericidal and agglutinating powers of the patient's serum against this organism are so distinctive, that compliance with the third law, though desirable, is not now essential. The conditions are similar in reference to cholera and the cholera vibrio.

The conditions are so unique in some diseases that, although all Koch's laws have not been literally met, certain equivalents *have been met*. To illustrate, we may consider an anopheles mosquito which has become infected with the plasmodium of malaria by biting a malarial patient, as a culture medium; and the transferring of the infection to another patient by the bite of this mosquito as the inoculation experiment which is desired.

Specific Infectious Diseases.

The term "specific infectious disease" has come to have a very special meaning. It is applied to a disease having characteristic clinical and anatomic phenomena, which can be caused only by one particular micro-organism. Among the diseases which come within the limits of this brief definition, the following may be enumerated (the micro-organism which is the cause of each disease being also given):

Diphtheria	*Bacillus diphtheriæ*
Tetanus	*Bacillus tetani*
Typhoid fever	*Bacillus typhosus*
Cholera	*Vibrio choleræ*
Anthrax	*Bacillus anthracis*
Tuberculosis	*Bacillus tuberculosis*
Leprosy	*Bacillus lepræ*
Plague	*Bacillus pestis*
Dysentery (bacillary)	*Bacillus dysenteriæ*
Influenza	*Bacillus influenzæ*
Glanders (farcy)	*Bacillus mallei*
Chancroid	*Bacillus chancri mollis* (Ducrey)
Recurrent fever	*Spirillum obermeieri*
Gonorrhea	*Micrococcus gonorrheæ*
Epidemic cerebrospinal meningitis	*Diplococcus intracellularis meningitidis* (of Weichselbaum)
Actinomycosis	*Actinomyces bovis et hominis*
Blastomycosis	*Blastomycetes* and *Oidia*
Malaria	*Plasmodium malariæ*
Tick or mountain fever	*Pyroplasma hominis* (Wilson and Chowning)

A large number of animal diseases have their specific microbes, as do certain other human diseases which hardly concern us as to the subject in hand.

Unknown Etiology.

In addition to the diseases mentioned, there are several which from analogy we must place in the same group. Scarlet fever, measles, German measles, chickenpox, smallpox, yellow fever, typhus fever, hydrophobia and syphilis, are undoubtedly due to micro-organisms. Mallory recently found in the skin of four scarlet fever patients a protozoön-like body which he believes to be the cause of the disease, although he admits that much desired proof has not been obtained.[1] The *Diplococcus scarlatinæ* of Class, which a few years ago acquired some notoriety, has not been able to stand as the cause of scarlet fever in the face of rigid investigation.

Parker, Beyer and Pothier have announced the discovery of a protozoön, *Myxococcidium stegomyiæ*, in the mosquitoes which infect man with yellow fever; but Carroll maintains that this organism has no relation to the production of the disease. The *Bacillus icteroides*, which Sanarelli found in a rather high percentage of cases, is now generally considered as a contaminating organism.

It is possible that smallpox and vaccinia will be eliminated from the diseases of unknown causation, owing to the evidence of protozoön etiology that Councilman and his colaborers have obtained; however, for the present, the question may be considered *sub judice*[2] in view of the fact that the forms described bear a close resemblance to certain well-known types of cell degeneration.

The following animal diseases, of unknown etiology, may also be mentioned in this connection: Foot and mouth disease, peripneumonia, bovine pest, sheep-pox (clavelee), chicken-typhus or chicken-pest and epithelioma contagiosum of fowls.

Obstacles to Discovery of Microbes.

The following appear to be the chief reasons for the failure to discover the organisms of these diseases: 1. Inability to cultivate the microbe. (The spirillum of Obermeyer, and the leptothrix are examples of known organisms which have not been cultivated.) 2. Mixed, or symbiotic infections. It is conceivable that in some case the combined action of two micro-organisms may be necessary to cause the disease. The non-toxic products of the two may synthesize to form a toxic substance. 3. Unstainability of the microbe. 4. Ultramicroscopic size. The organism of the peripneumonia of cattle was cultivated by Nocard and Roux by growing it in a closed collodion sac which was placed in the peritoneal cavity of suitable animals. It is so small that its form can not be made out, and growth is recognized only by the clouding of the culture medium, and the increased virulence of the latter for animals.

Filterability of Viruses.

Some valuable information has been obtained by observing whether these infectious agents are so small that they will pass through dense filters of porcelain or infusorial earth. It has been found that the viruses of foot and mouth disease, peripneumonia, rinderpest, sheep-pox, chicken-typhus, horse sickness, epithelioma contagiosum of fowls, and yellow fever are filterable. This is determined by injecting the filtered culture medium or serum into susceptible animals. The viruses of smallpox and vaccinia are said to be non-filterable. Success in filtering the hydrophobia virus has recently been claimed by Remlinger. Inasmuch as scarlet fever, measles, chicken-pox, typhus fever and syphilis* can not be produced in animals, the filterability of their viruses is not at present susceptible of demonstration.

Non-Specific Infectious Processes.

There is a marked tendency in many diseases, typhoid, cholera, malaria, etc., for characteristic organs or groups of organs to be involved in some particular manner. These are features which stamp them as specific diseases. On the other hand, there is a large number of micro-organisms which cause no well-defined clinical and anatomic disease, but depending on various accidents, cause an *inflammation now in one organ, now in another*. Suppuration is not a specific disease because the pyogenic power is common to a large number of microbes.

A diphtheritic or pseudo-diphtheritic process in the mouth and throat may be caused by the diphtheria bacillus, streptococcus, staphylococcus, oidium or yeasts; bronchitis may be caused by the influenza, tubercle, plague and typhoid bacilli, and by the infecting agents of the acute exanthemata, etc.; pulmonitis by the pneumococcus, streptococcus, tubercle, plague, Friedlander and influenza bacilli, oidium, actinomyces, etc.; meningitis by the tubercle and influenza bacilli, streptococcus, staphylococcus, pneumococcus, gonococcus, diplococcus of epidemic meningitis, the syphilis virus, etc.; arthritis by the streptococcus, staphylococcus, tubercle bacillus, gonococcus, the virus of rheumatic fever, etc.; endocarditis by the streptococcus, staphylococcus, gonococcus, pneumococcus, tubercle bacillus, etc.; and septicemia by a whole host of organisms aside from those mentioned as causing specific diseases.

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[1] Jour. of Med. Research, No. 4, 1904.

[2] Jour. of Med. Research, No. 1, 1904.

*Recently syphilis has been inoculated successfully into anthropoid apes.

Within certain limits, however, there is often a degree of specificity in the processes produced by some of the organisms mentioned, which sometimes allows of clinical and anatomic differentiation. The infiltrating and rapidly extending invasion of the subcutaneous and connective tissues caused by the streptococcus can often be distinguished clinically from the slower, more circumscribed process of the staphylococcus. The conditions induced by the *Bacillus aerogenes capsulatus*, or bacillus of malignant edema, are in turn different from those of the streptococcus and staphylococcus. The membranous inflammation of diphtheria may in favorable cases be distinguished from that of the pyogenic organisms without bacteriologic aids. In this possibility, however, there lies no justification for neglect of the bacteriologic examination.

Mixed Infections.

The coexistence of two or more micro-organisms in a morbid condition is of very frequent occurrence, and some of the most interesting and important phenomena seen in infectious diseases are referable to mixed, secondary or superimposed infections. Two exogenous infections may attack an individual at the same time. Measles and scarlet fever and diphtheria and scarlet fever have been known to coexist. Pneumococcus pneumonia and typhoid fever, chancre and soft chancre, chancre with pus cocci, syphilis and gonorrhea, diphtheria with streptococci, tetanus with gangrene-producing organisms, are common observations. One organism may intensify the virulence of another. Diphtheria accompanied by streptococcus infection seems to be more virulent than diphtheria alone. It is also believed that the presence of aërobic organisms (those which demand oxygen for their development) in a wound infected with the tetanus bacillus or the bacillus of malignant edema (anaërobic organisms), may increase the virulence of these infections. Streptococci are probably important organisms in scarlet fever for they are present in unusual numbers in the throat lesions and are often found in fatal cases in all the organs, yet it is believed that they constitute only a mixed or secondary infection superimposed on that of the scarlatina virus. The conditions are somewhat similar in smallpox, the pustules of which invariably contain streptococci, staphylococci, or both. In both scarlatina and smallpox these secondary infections may be responsible for many fatalities.

Pneumococcus pneumonia occurring during the course of, or during convalescence from the eruptive fevers, diphtheria, typhoid fever, erysipelas, a streptococcus septicemia developing during typhoid (giving rise to an irregular temperature curve), streptococcus infection of tubercular cavities, and the development of acute tuberculosis following or during measles —these are important examples of secondary infections.

We should naturally expect that the presence of a severe secondary infection might embarrass attempts at serum therapy. Experience on this point is practically limited to diphtheria, and there is no lack of evidence to show that the disease when complicated by severe streptococcus infections often can not be controlled by antitoxin treatment.

Infectious Intoxications.

It may be emphasized that there are certain diseases where a wide dissemination of the bacteria is not necessary for the production of morbid phenomena; where, in fact, they may be entirely localized (diphtheria, tetanus), and the symptoms produced by virulent toxins which are readily dissolved in the body fluids and carried to important organs. More especially, those microbes are placed in this class which, in our artificial culture media (bouillon), produce their specific disease-producing toxins in a soluble form. The bacilli of diphtheria, tetanus, botulism and the pyocyaneus bacillus belong distinctively to this group.

Snake venom and arachnolysin (spider poison) are the best known examples of soluble animal toxins. As will appear later, the serums of all animals probably contain a variety of toxins injurious to one or more species of animals.

(*To be continued.*)

Good Advice to the Young Graduate.—We clip the following from the *Tulane Phagocyte*, which is published in the interests of the alumni and students of the medical department of Tulane University, New Orleans: "We trust that our recent graduates, who have gone to take their places in doing the work and carrying the burdens of the profession, will devote some thought to the subject of this brief article. The man who enters the medical profession to-day, safeguarded as it is by proper legislation, equipped with excellent schools, given in some degree its proper place as a factor in the community, does not always realize that these things have not come of their own accord, but have resulted from the earnest and continuous efforts of his elder colleagues and their predecessors. The newcomers who fall heirs to the present state of the medical profession, social, political and scientific, owe a duty to that profession—to keep at least undiminished its present possessions and to add as much as may be proper and possible in each and every direction. Graduate of 1904, join your county or parish, your state, and finally the national society as the first step in the performance of this duty. Without organization very little is ever accomplished. Remember, too, that in thus doing your duty to the profession you will place yourself in the most advantageous position for doing your duty to yourself and to your patients. You will learn much that is valuable by rubbing against your colaborers, at the same time that you contribute to their acquisitions of medical lore. Again, your close acquaintance with them will give opportunities for co-operation to mutual advantage and eliminate unnecessary friction. Propinquity, they say, is the best matchmaker; it might be added that it is essential to friend-making. Send in your application for membership in your local society and then go on up, through your state society, into the American Medical Association, without membership in which you ought to be unwilling to rest satisfied."

Wounds of the Cervical Portion of the Thoracic Duct.—P. Lecenè (*Revue de Chirurgie*) reports a case in which the thoracic duct was divided in its cervical portion in the course of an operation for the removal of enlarged lymphatic glands in the neck. He has collected twenty-one cases of like character from the literature and he reaches the conclusion that such wounds, without being frequent, are not of exceptional rarity. They fall into two classes, according as they are observed in the course of an operation, or as the symptoms make their appearance afterward. In the first instance, the characteristic sign is the escape into the wound of clear or milky liquid, at times ejected rhythmically. In the second instance, the characteristic signs are the escape of chyle, either through the drain in the wound of operation, which often must be reopened; marked thirst, wasting, general asthenia and at times also oliguria. Among the twenty-two cases studied, death was noted in but one, and this occurred in the preantiseptic period. In all of the others, recovery ensued more or less rapidly as a result of the therapeutic measures employed. The prognosis as to life is, accordingly, not grave, although serious accidents may result from the loss of considerable amounts of chyle. The treatment varies in accordance with the conditions present. If the wound is discovered in the course of an operation, the peripheral portion of the duct should be ligated; the application of a ligature to the central portion is unnecessary in the vast majority of cases, as the valve in the duct is sufficient to prevent the escape of fluid. Ligation of the peripheral portion is unattended with injurious results, as has been shown by clinical observations on man and experimental observations on animals. Suture of the duct has been successfully effected in but one instance. The operation is applicable only in rare instances, in which the wound in the duct is incomplete. If the wound in the duct is not discovered until some time after the operation, a tampon may be applied, and recovery usually ensues rapidly. Reopening of the wound and exposure of the duct and its compression or ligation are permissible procedures and may prove successful, but they are always difficult and usually unnecessary, as simpler means generally suffice.

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NOTIFICATION IN PULMONARY TUBERCULOSIS.

In the January nmber of *McClure's* an article on the warfare against tuberculosis contains a severe arraignment of the medical profession. According to the author, physicians have not only, with a very few exceptions, played an insignificant part in the recent campaign to exterminate tuberculosis, but have actually hampered the work by their persistent opposition to the registration of cases and to the compulsory disinfection of infected dwellings. The author speaks of the "blind bitterness of prejudice" of the medical profession, "which is one of the most potent allies of the disease." The medical department of the University of Pennsylvania is credited with having defeated the compulsory registration law in that state, and in other states the opposition to such a law has always been headed by physicians. Chicago physicians are accused of sending such untrustworthy reports as to deaths from tuberculosis that the department of health is forced to depend on undertakers' certificates for its mortality statistics. The same opposition on the part of the profession is said to stand in the way of compulsory disinfection. As a single instance, Indiana is said to have a state law providing for compulsory disinfection, but "public sentiment led by medical sentiment" is against it.

Such criticism, absurdly unjust as it seems, should not be passed over lightly, for it may contain some slight element of truth. Of course, a popular writer can hardly be expected to realize that no progress would ever have been possible in the warfare against tuberculosis had the medical profession shown the indifference with which he charges it. On the contrary, all popular movement in this direction must necessarily follow the lines laid down by medical science.

The reason why laymen have taken so prominent a part in this movement is that tuberculosis is a disease depending largely on social conditions which can be corrected only by the efforts of the community at large. The profession has recognized this social element in tuberculosis for almost twenty years and, had the laity been prompt to follow the teachings of physicians, the disease would have been half conquered by now. The point in these charges which is worthy of serious attention is the alleged opposition to compulsory registration and disinfection on the part of the medical profession. It is perfectly true that there is a widespread feeling of opposition to registration, which must have some reasonable basis or it would not exist. The cause given by the author of the article is that physicians object to making official reports for which they are not paid. This objection may exist in the minds of some physicians, yet undoubtedly the majority are actuated by motives of a quite different order; they fear, and perhaps justly, that the compulsory reporting of cases will so attract public attention to the infectiousness of tuberculosis as to increase in the popular mind the already exaggerated fear of contact with tuberculous persons, and also that this measure will subject their patients to annoying interference and publicity.

As to the first objection, namely, that physicians decline to report because they are not paid for doing so, the most obvious counter-argument is that the state confers special privileges on physicians, for example, freedom from jury duty and preference in the payment of claims against an estate, and in return for these the state may reasonably demand such a service as the reporting of contagious diseases, even if it had not the supreme right to demand any service which the public health required.

The other two objections must be treated with far more respect. Phthisiophobia is a real danger. We are all aware of the fact that the chief progress the laity has so far made in the understanding of tuberculosis is to acquire an exaggerated idea of its infectious nature. Indeed, thus far the "tuberculosis crusade" seems to have doubled the hardship to a great number of consumptives by making them objects of fear and suspicion, while it has succeeded in alleviating the lot of only a small minority. If it were true that registration could not be carried on without increasing this undue dread of the consumptive, then the measure could not be justified, however useful it might prove in the gaining of important information. It is, however, perfectly possible to devise a practicable method which shall furnish the desired information without violating the physician's confidence. The practice has been tested and found to work successfully of furnishing to physicians postal cards on which the name and address of the patient is to be written and a statement made as to whether or not the physician desires to have an inspector sent from the board of health to visit and instruct the patient and his family. In case the inspector's visit is not required the matter ends there; the board of health has gained its information, and the patient is not even aware that a report has been made. It is true that complaints have sometimes been made that after a report has been sent in the patient is assailed by advertisements of proprietary remedies and so-called cures for consumption. If such complaints are in any degree justified by the facts, they do not at all impeach a proper system of registration, but only impeach the board or bureau, through the connivance of whose officials lists of tuberculous patients are obtainable.

The value to the public health of a system of registration of all tuberculous cases can hardly be denied by any one who has at all concerned himself with the modern warfare against this disease. The same may be said of the corollary of this measure, namely, compulsory disinfection of dwellings. The first essential in combating any infectious disease is definite knowledge of its extent and distribution, and how is this knowledge possible unless all cases of the disease are reported? The importance of house infection in the spread of tuberculosis is receiving more attention all the time, and it is difficult to see how any one familiar with the poorer part of our population, whether in country or city, can object to a measure which aims to remove this particular source of infection.

New York City, after several years of compulsory registration of tuberculosis, has succeeded in collecting a most valuable series of statistics which enable her to find the plague spots in that city, and to inaugurate rational sanitary reform. It is not by covering up the actual facts as to the extent of the disease, while encouraging a general agitation as to its infectiousness, that we may hope to rid the popular mind of phthisiophobia. General apprehension as to the dangers of tuberculosis has been enough aroused, it is now time to turn this feeling into constructive channels.

As a basis for sanitary reform of the poorer parts of a city, for compulsory disinfection of infected houses, for the proper location of dispensaries for the tuberculous poor and for the consequent erection of appropriate sanatoria for different classes of patients, a knowledge of the distribution of the disease, which can only be gained by a good system of registration, is essential.

ALBUMINURIA DUE TO PALPATION.

The prompt reaction of the kidneys to circulatory disturbances has long been known, and albuminuria of a transitory character dependent on such changes is not infrequently seen. It has also been shown experimentally that thoracic compression, general, or confined to the lower thorax, and general abdominal compression will cause transitory albuminuria. That direct manual compression of the kidneys may, under certain circumstances, cause albuminuria has not been so widely recognized.

Schreiber[1] has recently called attention to this form of albuminuria, which he characterizes as renal palpatory albuminuria. It was first described by Menge. in 1880, but its clinical possibilities do not seem to have been appreciated at that time. Schreiber restudied the phenomenon, and endeavored to find out how normal and movable kidneys reacted under palpation. Dividing movable kidneys into three grades, according to the classification suggested by Hilbert, he found that in the medium and severe grades palpation was always followed by albuminuria, and in the mild grades palpatory albuminuria was almost constant.

The degree of albuminuria varied in different cases, and did not necessarily correspond to the grade of dislocation, to the palpability of the kidney, nor to the duration of the palpation, as might have been expected *a priori*. In 41 cases in which albuminuria was present, there was only a trace in 14, while in the other 27 the amount varied from a slight flocculent precipitate to 3 per mille by Esbach's method. The duration of the albuminuria was usually very short, and in this it differed from the albuminuria of organic disease. Schreiber states that the urine should never be examined later than ten minutes after the palpation has been done, as in one of his cases the albumin had disappeared after twelve minutes. In some cases albumin was still present two hours after the palpation, but such cases were exceptional.

The urine generally showed physical and microscopic changes when albumin was present. After palpation it was often lighter in color than previously, and in some cases an excess of phosphates was present. The microscope always showed an increase in the epithelial cells, and frequently red blood cells and leucocytes were found. The leucocytes were generally partly polynuclears and partly mononuclears, but in one or two instances were almost entirely lymphocytes. In no instance were true casts found, though occasionally pseudo casts were present.

Schreiber discusses various possibilities regarding the origin of the albumin. It can not be due, he thinks, to actual injury to the kidney tissue, for it is too transient, nor can it be due to injury of the vessels with rhexis, because red blood cells are not constantly present. He inclines to the belief that a variety of factors are concerned, and he cites, as the most important, pressure of blood serum from the blood vessels, pressure of lymph from the lymph channels and changes in the blood pressure. The not infrequent presence of blood cells shows the likelihood of the first cause, the occasional exclusive presence of lymphocytes the second, and the fact that the albuminuria is at times out of all proportion to the intensity of palpation the third.

In the latter part of his article Schreiber discusses the effect on the kidney of indirect compression such as is exerted on the right kidney in palpating the liver. He also cites cases to show the value of the procedure in dystopia of the kidney and in doubtful abdominal tumors. So far as indirect palpation is concerned he comes to the conclusion that it very seldom produces albuminuria, and when it does the albumin is very slight in amount. His cases demonstrate that palpatory albuminuria may be of distinct value in differentiating obscure abdominal tumors. He suggests that in some cases the use of his method may obviate the necessity of more serious procedures, such as catheterization of the ureters, or exploratory laparotomy. Schreiber does not claim marvelous results from his method, but simply regards it as an aid to other methods which at times may be of value; as such it is worthy of extended trial.

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[1] Zeits. für Klin. Med., p. 55.

EXPERIMENTAL STREPTOCOCCUS ARTHRITIS IN RELATION TO THE ETIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

In England the view seems to be gaining ground that acute articular rheumatism is caused by a special micro-organism—*Micrococcus rheumaticus*—which has been isolated by various investigators from the blood, the urine and the joints of cases clinically regarded as acute articular rheumatism. Naturally, this view was materially strengthened when it was found that this coccus, which does not present any decisive cultural and morphologic differences from ordinary streptococci, produces arthritis and endocarditis when injected into rabbits. Most recently Beattie,[1] for example, after working with an organism obtained from the synovial membrane of a girl with acute rheumatism, came to the conclusion that *Micrococcus rheumaticus* is a distinct microbe, and the special cause of acute rheumatism.

There seems, however, to be good reason to go slowly in accepting this conclusion as final. There are, indeed, two very weighty objections in particular that must be removed before such acceptance can become possible. The first is that competent observers in various countries—Cole in Baltimore and Jochmann in Breslau, among others—have failed to find *Micrococcus rheumaticus* or any other microbe in the joints or in the blood of typical cases of acute articular rheumatism. The second objection is that Cole[2] has been able without any particular difficulty to produce in rabbits arthritis and endocarditis by means of intravenous injections of streptococci from diverse sources.

The results obtained by Cole were in every way quite similar to those obtained by the English observers on injection of the so-called *Micrococcus rheumaticus*, and regarded by them as sufficiently distinctive effects to justify them in regarding this microbe as a definite variety or species of streptococcus. Manifestly, the faculty of producing arthritis and endocarditis in rabbits by itself does not warrant the establishment of a distinct form of streptococcus. In view of these two objections we clearly are not warranted in regarding the etiology of acute rheumatic fever as solved in the sense of the English observers. Of course, it must be acknowledged that their work seems to emphasize the importance of streptococci in causing articular and endocardial lesions similar to those of acute rheumatism. Whether streptococci are the real cause of acute rheumatic fever—much might be cited that speaks for such a view—is, however, a question that can be solved only by continued investigation. The negative results obtained by Cole, Jochmann and others from their cultural experiments indicate at least that the complete solution of the problems connected with the etiology of acute rheumatism is not such an easy matter as it might appear at first sight.

TRUTH AND POETRY CONCERNING URIC ACID.

IV.

Horbaczewski, as we have pointed out, demonstrated the very important fact that uric acid may be derived from nucleins, but went off at a tangent and maintained that it does not come from all nucleins, but only from the nucleins of leucocytes. His arguments, it must be admitted, sounded plausible enough. He maintained that his studies showed, as a rule, a parallelism between leucocyte counts and uric-acid excretion. Where the parallelism failed he explained the discrepancy by assuming a class of leucocytoses without leucocytic destruction. The blood of children contains more leucocytes than that of adults and this, he believed, accounts for the relatively great excretion of uric acid in the former. Further, he brought the increased excretion of uric acid after eating, especially after a meat diet, into relation with the digestive leucocytosis. Feeding nucleins increased uric-acid excretion, but so convinced was he of his new view, that he assumed that the nucleins fed acted only indirectly by first producing a leucocytosis. Quinin diminishes leucocytosis, accordingly Horbaczewski thought it diminishes uric-acid excretion. Pilocarpin, he stated, increases both uric-acid excretion and the leucocyte count.

Medical men for a time rushed like a flock of sheep after Horbaczewski. Hypnotized, as it were, by the brilliant proof of the origin of the uric acid from nuclein, they were eminently susceptible to any suggestion that came from him. Thus Horbaczewski's theory of an origin of all uric acid from leucocytic nuclein alone, despite its flimsy foundation, met with remarkably general approval and acceptance. Many confirmatory reports of uric-acid determinations running parallel to leucocytoses were made; discordant findings were lightly explained away.

A new impetus to work on the urine was given in 1895 by Krüger and Wulff, who introduced a method for easily and quickly determining the amount of alloxuric bodies (uric acid plus xanthin bases) excreted. The idea gained ground that some of the discrepancies in the results above referred to might depend on the fact that in the decomposition of leucocytic nucleins both xanthin bases and uric acid are formed and that the relative amounts of these vary under different conditions of metabolism; if the total alloxuric bodies could be easily determined a parallelism of their excretion with the leucocyte count might, it was hoped, prove to be more constant than that of the uric acid alone. Leukemia was the disease which invited a special investigation in this regard, and between 1894 and 1898 we find a number of researches bearing on this subject. The results were, however, very conflicting, and in 1897 Hüppert and, in the same year, independently, Salkowski proved the total unreliability of the method of Krüger and Wulff; no importance, therefore, is to be attached to results based on its application to the study of our subject unless they are also supported by more accurate analytical methods.

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[1] Brit. Med. Jour., Dec. 3, 1904.
[2] Jour. of Infec. Dis., 1904, vol. i, p. 714.

Even when more exact methods were employed, very contradictory results were obtained by equally good observers. In the study of pneumonia, especially, there was no concordance. While some maintained that the uric-acid excretion is increased at the height of the leucocytosis, others asserted that it is only after beginning absorption of the exudate that uric acid is excreted in larger amounts. The studies by Kühnau[1] were among the most elaborate. He corroborated Horbaczewski's view as a result of his examination of the metabolism in pneumonia and pleurisy and where a leucocytosis appeared with no corresponding increase in uric-acid excretion he even thought it probable that the leucocytes wander gradually back into the tissues without undergoing destruction.

A modification of Horbaczewski's view was suggested by Dunin and Nowaczek.[2] These investigators denied that the increased uric-acid excretion in pneumonia keeps pace with the increase of leucocytes in the blood, but attributed it solely to the absorption of the resolving exudate, and Carlyle Pope's findings in 1899 may be similarly interpreted.

Richter,[3] in 1895, had published a long series of observations which indicated that no constant relation between leucocytosis and uric-acid excretion can exist; in spite of his results he still leaned more or less on Horbaczewski's view.

Enough has been said, perhaps, to show what a sorry state the subject was in at this time. Some workers felt sure that the presence of a leucocytosis in the peripheral blood indicates an increased destruction of leucocytes; others were equally sure that a hypoleucocytosis is a certain indication that leucocytes are being destroyed, both sides apparently forgetting two important facts (1) that the number of leucocytes existent at any time represents the algebraic sum of the leucocytes manufactured and the leucocytes destroyed, and (2) that the number of leucocytes present in a peripheral vessel often depends on abnormal distribution rather than on abnormal production or destruction.

The factor of distribution of leucocytes in relation to leucocytosis was emphasized by Rieder in 1892 and later by Goldscheider and Jakob in 1894. John Billings, Jr., at the Johns Hopkins Hospital proved how the cold baths given to typhoid patients temporarily lead to accumulations of leucocytes in the cutaneous blood vessels, and Bohland,[4] in 1899, showed that atropin causes hypoleucocytosis in peripheral vessels, while the capillaries of the lungs are dilated and crowded with leucocytes; pilocarpin causes diminution of the leucocytes in the lung capillaries. Pilocarpin, it is said, increases uric-acid excretion, while atropin does not. His explanation was that pilocarpin increases the decomposition of nuclein, in spite of the absence of leucocytosis, and so more uric acid is excreted.

The sum of all these researches shows that while destruction of leucocytes in the body leads to increased uric-acid excretion, the number of leucocytes in the peripheral vessels is no gauge for the amount of leucocyte destruction going on nor for the amount of uric-acid formation. Moreover, a whole series of conditions has been studied in which there is increased uric-acid excretion without leucocytosis or evidence of leucocytic destruction. In many of these conditions nucleated cells other than leucocytes are destroyed. Again, as Minkowski[5] states, there is good reason to believe that an increased function of nucleated cells, without actual cell destruction, may be sufficient to augment nuclein cleavage and uric-acid formation. Indeed, it is not impossible, as Melis-Schirru[6] suggests, that increased uric-acid excretion and leucocytosis may be due to one and the same cause. If the activity of the hemopoietic organs be increased from any cause, the first expression may be an augmented nuclein metabolism; if the activity be still further exaggerated, leucocytosis results.

Strangely enough, as far back as 1892, Mares[7] had recognized the fallacies of Horbaczewski's arguments and made their insufficiency clear. At that time he accepted an origin from nuclein, but urged (1) that uric acid may be formed by a vital chemical process through gradual metabolic decompositions of nuclein instead of by the passive process of cell-death and nuclear destruction and (2) that the nuclein of any of the body-cells, and not simply that of the leucocytes, may give rise to uric acid. Horbaczewski's star was, however, so in the ascendant at that time that but little attention was paid to these keen observations of Mares. And even Mares did not see the whole truth, for he denied the direct transformation of the nucleins of the food into uric acid; as to the possibility of the latter process we shall have something to say in a succeeding issue.

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[1] Kühnau, W.: Experimentelle und klinische Untersuchungen über das Verhältniss der Harnsäure-ausscheidung zur Leukocytose. Ztschr. f. klin. Med., vol. xxviii, 1895, p. 534; Ueber das Verhalten des Stoffwechsels und der weissen Blutelemente bei Blutdissolution. Deutsche Arch. f. klin. Med., vol. lviii, 1897, p. 339; see also Kühnau und Weiss: Weitere Mittheilungen zur Kenntniss der Harnsäureausscheidung bei Leukocytose und Hypoleukocytose, sowie zur Pathologie der Leukämie. Ztschr. f. klin. Med., vol. xxxii, 197, p. 482.

[2] Dunin, T., u. Nowaczek, S.: Ueber Harnsäureausscheidung bei croupöser Pneumonie. Ztschr. f. klin. Med., vol. xxxii, 1897, p. 1.

[3] Richter, P. F.: Ueber Harnsäureausscheidung und Leukocytose. Ztschr. f. klin. Med., vol. xxvii, 1895, p. 290.

[4] Bohland: Ueber die Einwirkung der Hydriotica und Antihydriotica auf den Leukocytengehalt des Blutes. Centralbl. f. inn. Med., vol. xx, 1899, p. 361. Ueber den Einfluss einiger Arzneimittel auf die Bildung und Ausscheidung der Harnsäure. Münch. med. Wochenschr., vol. xlvi, 1899, p. 503.

[5] Minkowski, O.: Ueber Leukämie und Leukocytose. Verhandl. des xvii Kongr. f. inn. Med., 1899, p. 158.

[6] Melis-Schirru: Sulla genesi dell'acido urico. Centralbl. f. inn. Med., vol. xx, 1899, p. 1042.

[7] Mares: Zur Theorie der Harnsäurebildung im Säugetierorganismus. Monatsh. f. Chem., vol. xiii, 1892, p. 101.

DAWN?

The "divine healing" business seems to be going awry. So long as there is "money in the business," divine healing is a fine thing to dole out to the other fellow. Of late there have been unmistakable signs that when the "healer," the "Elijah," the "apostle," gets ill the faith business appears depressed. Dowie and his family are seeking health in the Bahamas, where probably they are plucking "leaves of healing" from the tropic vegetation. At least, as a coincidence, apparently as a not unnatural sequence, we see in the newspapers of late no stories of remarkable "cures" performed by "the prophet." There are not lacking signs that a portion of the public is getting its eyes opened.

AN ENCOURAGING SIGN.

A comforting sign of the time in Chicago is the very general and respectful attention given by the public to the excellent hygienic suggestions offered weekly by the *Bulletin of the Health Department* of Chicago, and willingly reprinted by the newspapers. Seldom has it been the case that advice of this sort has been so respectfully received by American communities. The fact is a most encouraging omen to those medical men to whom it seems, at times, as if the public cared naught for their hard work for the good of the community. Other reward is largely denied the sanitarian. At least, it is for him a comfort to know that a community has learned to listen attentively and to give heed, to a certain extent at least, to advice and suggestions offered by medical men.

TEA DRINKING.

Every little while there is an outcry against the practices of tea and coffee drinking. Lately it has been alleged that the degeneracy observed in the lower classes of Great Britain is largely due to the immense quantities of tea which is drunk in that kingdom. Without any doubt, a few people do drink too much tea and would be better without it. But tea drinking, as in China, may be the salvation of a people from much greater evils. The decoction has at least the advantage of having been sterilized by heat, and water drinking in China has its dangers, as many an old traveler can testify. The immense quantities of tea used without apparent damage by some of the most robust peoples in the world other than the Chinese, such, for example, as the Russians, the Hudson Bay voyageurs and the lumbermen of the North, does not testify to its evil effects on general health, under proper conditions. For a cold country it is almost an ideal stimulant, reviving the energies, even after almost apparently complete exhaustion, and affording a feeling of comfort that hardly anything else can give, and this without any noticeable uncomfortable after-effects. Of course, in our civilization there are some who take too much of many things for their own good, but even in these cases it is hard to say that the evil is as great as sometimes charged. The practice of giving large quantities of strong tea to mere infants, which is common among certain of the poorer classes of our cities, of course can not be too much condemned, but it is astonishing how many infants seem to thrive on it. There should be some discrimination in the general condemnation of such stimulants as tea and coffee. They probably do more good than harm, and we should welcome their use if by any means or to any extent they can be made a substitute for things that are worse, and if the habit were universal in some of our insanitary communities we might find it here, as among the earthly Celestials, the safeguard against many serious evils. If the question is asked, "What is the poor man to drink?" there need be no hesitation in answering: "Tea."

NATIONAL DIET AND ITS CHANGES.

The diet of a country is popularly supposed to be an important element in making and fixing the character of its population, and yet it may be that we overestimate its importance in this regard. According to census statistics, there has been a large decrease in meat consumption and a corresponding increase in that of cereals and vegetables. Thus in 1850 the consumption of wheat was 4.30 bushels to each American. In 1900 it was 6.23 bushels. The Scotch diet of oatmeal has been adopted by the Americans within the last fifty years to a very great extent, as shown by the increase of from 0.90 bushels in 1850 to 3.86 bushels per capita consumption in 1890. There has been a corresponding increase in the item of vegetables, though the use of potatoes seems somewhat to have decreased. The use of sugar has nearly tripled per capita in the last fifty years, showing the importance of this carbohydrate in our diet. All this does not mean that we are becoming a nation of vegetarians, for we are still large meat-eaters and probably will continue to be such. It means, however, that the country is growing older, and is assimilating itself more and more in the matter of diet with other older countries. How far this will affect the national character no one can absolutely foresee, but that it will seriously modify it may be doubted.

THE PERIODICITY OF DREAMS.

Dreams are experiences shared by all mankind and their pathologic importance in some cases has always been recognized. They seem, however, to follow no laws. At least this has been the generally accepted opinion. Recently, however, an Austrian investigator, Dr. Herman Swoboda, has claimed that dreams follow a certain periodicity, that certain impressions or events are revived in the visions of the night at regular intervals; in men usually every twenty-three and in women every twenty-eight days. He has been able to predict certain specified dreams, he claims, according to this law, and gives instances which, he thinks, substantiate his position. He also utilizes this periodicity to explain certain peculiar phenomena, such as premonitions of facts occurring at multiples of the stated periods. The suggestion is an interesting one, but it appears to us that it will require a very much more extensive series of observations before it can be accepted as a law. There are comparatively few of us that can recall our dreams unless they are especially impressive, and even such dreams are apt to be forgotten quickly. That they are connected with certain bodily conditions is generally agreed, and when these are of a cyclic or periodic character it would not be remarkable if they were accompanied with certain modifications of the subconscious intellection of the slumbering state. Even here, however, we have certain difficulties in the study. A German medical man of some prominence in science once reported that he and another colleague made a special study as to the periodicity of certain classes of dreams, but came to the conclusion that there was no general law controlling their appearance. It would be unorthodox to assert that premonitory dreams have not occurred in the past, but it would be exceedingly uncomfortable if we had to admit their frequent occurrence in the present. While the line of study opened up by Swoboda is a captivating one, we still prefer to keep our expectations moderate as to its results.

ORGANIZATION OF HEALTH BOARDS.

As a direct result of the growth of our knowledge of the nature and cause of preventable diseases, infectious and otherwise, the work of our boards of health and public health officers is assuming constantly increasing scope and importance. Practically every state, every city, every village and every township in the United States has adopted various regulations and has established certain procedures looking to the preservation of health and prevention of disease, and has placed the carrying out of these measures in the hands of officials such as the members of the boards of health and the health officers. In most states, however, these various officials are working more or less by themselves, with comparatively little opportunity for helpful discussion of common problems with fellow-officials. It would seem that the time is ripe for discussion of the desirability of drawing together into voluntary associations for mutual and public benefit all the health officers in a state. The work which is being done by the Association of Massachusetts Boards of Health shows that much good may be accomplished in this way. The journal of this Association can not but be a direct stimulus to the Massachusetts health official. There are so many details in connection with public-health work in regard to which the public must be educated that, on this account, concerted action is required by those best acquainted with the situation. if satisfactory progress is to be made. For example, in many places the legal status of the health officer is far from satisfactory, and in view of the importance of his work the pay is generally inadequate. Lawmakers must be educated to understand that in matters of public health the best available expert service is none too good, and that expert service means expert pay. Again, concerted action of officials directly interested is needed to secure as promptly as possible adequate state and municipal bacteriologic and pathologic laboratories. In this important respect the first step is still to be taken in many states and cities. Naturally, associations of this kind would aid in securing intelligent, harmonious, well-organized administration of well-considered regulations in regard to matters of public health. For these, and for other reasons, state associations of boards of health would seem to be an important step in the development of public health in this country.

Medical News.

DISTRICT OF COLUMBIA.

Personal.—Dr. Carl H. A. Kleinschmidt, ex-president of the Medical Association of the District of Columbia, who has been seriously ill for some time, is now reported to be out of danger.

Incorporation Bill Referred.—The bill to incorporate the American Medical Association has been referred to the subcommittee of the judiciary committee, composed of Hon. Richard Wayne Parker, New Jersey; Hon. H. W. Palmer, Pennsylvania, and Hon. D. A. Armond, Mississippi, for consideration and report.

Health Report.—The report of the health officers for the week ended January 21 shows the total number of deaths to have been 138, of which number 80 were white and 58 colored. There were 90 births and 17 stillbirths. At the close of the week there were under treatment 22 cases of diphtheria, 34 of scarlet fever, 72 of typhoid fever and 2 of smallpox.

ILLINOIS.

Change in Wards.—The old contagious disease ward in Cook County Hospital is to be transformed into a medical ward with a capacity of 100 beds. The necessary alterations will cost about $4,000.

Personal.—Dr. Charles F. Smith, Kankakee, was painfully injured by being thrown from his sleigh in a runaway, January 17.——Dr. Charles M. Bumstead, Monticello, underwent an operation for fistula, at St. Mary's Hospital, Decatur, January 20.

Suit Dropped.—In the suit of J. L. Owens against Dr. Henry J. De Haan, East St. Louis, in which $10,000 damages was claimed for alleged malpractice in the treatment of a fracture of the thumb, the plaintiff's attorneys took a non-suit, after witnesses for the defense had testified.

Itinerant in Trouble.—"Dr." Bixler, a traveling "tape-worm doctor," is under charges, at Kankakee, of practicing medicine without a license. It is alleged that he gave medicine to "induce" a cancer of the stomach to pass through the bowels. The cancer was not complaisant and the patient died.

State Board Re-election.—At the annual meeting of the State Board of Health, held in Springfield, January 31, the following officers were re-elected: Dr. George W. Webster, Chicago, president; Dr. James A. Egan, Springfield, secretary. and Dr. Peter H. Wessel, Moline, treasurer. Plans for the board's crusade against tuberculosis were mapped out, and a bill recently introduced in the legislature providing for the establishment of a state hospital for consumptives was approved.

Chicago.

New Hospital.—A building site, 100 by 280 feet, at 1222-1224 North Clark Street, has been purchased by Dr. Emil G. Beck, on which he purposes to erect a hospital to cost $80,000.

Physician Held Up.—Dr. Erasmus M. Hill, a physician of the health department, while coming from the disinfection of a house which he had superintended, on account of smallpox, was held up by two men, January 27, and robbed of his money, revolver and pocket case.

The Week's Mortality.—During the week ended January 28, 558 deaths were reported, equivalent to an annual death rate of 14.61 per 1,000. During the previous week there were 591 deaths, and in the corresponding week of 1904, 549 deaths. The principal death causes were as follows: Pneumonia, 96; consumption, 60; Bright's disease, 44; violence, 39; heart diseases, 36; and nervous diseases, 30.

Increase in Pneumonia Mortality.—During November, the first month of the current pneumonia season, there were 260 deaths reported to the department of health, from this cause—a daily average of 8.6. In December there were 451 reported—a daily average of 14.5 and an increase of 40 per cent. During the 28 days of January there were 459 pneumonia deaths—a daily average of 16.4 and an increase of 11.5 per cent. over the December rate.

INDIANA.

A Four Per Cent. Verdict.—In the damage suit for $5,000 brought by Charles E. Gallimore against Dr. Oliver James Cory for alleged malpractice, the jury awarded the plaintiff $198 damages.

Asylum Physician Exonerated.—Dr. John F. Glover, assistant physician at the Southern Indiana Hospital for the Insane, Evansville, was exonerated on the charges of cruelty to inmates of the institution, after an investigation made by the governor and the State Board of Charities.

Has Mental Disease.—Dr. Monroe W. Webster, South Whitley, township trustee, has asked that a guardian be appointed, as he realizes that he is at times unaccountable for and unconscious of his actions. The disability is due to business and financial worries. He has been sent to a sanitarium for treatment.

Teachers' Society Organized.—About seventy of the instructors in the various deparments of the Medical College of Indiana have organized the Teachers' Society of the Medical College of Indiana, with the following officers: Dr. Frank B. Wynn, president; Dr. Norman E. Jobes, vice-president, and Dr. William T. S. Dodds, secretary-treasurer.

Property Goes to Hospital.—Mrs. Harriet Jones, New Albany, who died January 16 at St. Edward's Hospital, has provided in her will that after all just debts are paid, her home property shall be given to the institution.——In default of heirs, the property of the late Rev. John A. Mack has been awarded to St. Joseph's Hospital, Logansport.

Osteopath Fined.—Edward C. Crow, Elkhart, was convicted in the Circuit Court, January 4, of practicing medicine without a license, and was fined $25 and costs, amounting in all to $61.25. The court instructed the jury that it was unlawful for any person in Indiana to practice what is known as osteopathy without having first secured a license to practice medicine, of a limited license, or a license to practice osteopathy.

December Morbidity and Mortality.—Bronchitis, tonsillitis, influenza and pneumonia were the prevailing diseases in December. The exact order of prevalence was: Bronchitis, tonsillitis, rheumatism, influenza, pneumonia, scarlet fever, pleuritis, smallpox, typhoid fever, intermittent fever, diphtheria, erysipelas, diarrhea, inflammation of bowels, whooping cough, puerperal fever, typho-malarial fever, dysentery, cholera morbus, cerebrospinal meningitis and cholera infantum. Smallpox was less prevalent than in the same month last year. There were reported 472 cases in 38 counties, with 8 deaths. In the same month last year 523 cases in 50 counties, with 2 deaths. There was, therefore, a decrease of 9.7 per cent. in cases, of 5 per cent. in area invaded, and an increase of 300 per cent. in deaths. Not until deaths appear in a local smallpox epidemic can physicians induce the people to be vaccinated. Vanderburg County had 122 cases of smallpox; Dubois, 53 cases, 3 deaths; Clay, 12 cases, 1 death; Vigo, 53 cases, 4 deaths; Clinton, 12 cases; Floyd, 41 cases, and Boone, 12. The total number of deaths in the month was 8,856, equivalent to an annual rate of 12.6. In the same month last year 2,854, rate 12.6. The principal causes of death were: Consumption, 368; pneumonia, 351; violence, 163; cancer, 121; typhoid fever, 67; diphtheria, 33; scarlet fever, 22; diarrheal diseases, 28, and cerebrospinal meningitis, 30.

Personal.—Dr. Lewis L. Williams, Brazil, has been reappointed secretary of the Clay County Board of Health.——Dr. David L. Kahn and family, Indianapolis, have returned after a year in Europe.——Dr. John B. Fattic, Anderson, local surgeon for the Big Four System, has resigned.——Dr. Solomon D. Kell has been re-elected for the fourth time, secretary of the Liberty Board of Health.——Dr. James W. Milligan, South Bend, has been appointed physician and surgeon to the state repenitentiary at Michigan City, vice Dr. H. Lee Streaker, resigned on account of ill health.——Dr. Nicholas A. Kremer, Madison, has been made secretary of the *Jefferson County* Board of Health.——Dr. Harry H. Weist, Richmond, was painfully injured in a collision between his buggy and an electric car, January 2.——Dr. P. Livy Schuyler, Evansville, was painfully injured in a collision between his bicycle and a cab, December 29.——Dr. Charles F. C. Hancock, Jeffersonville, has been elected state senator.——Dr. John Halton and family, Muncie, have moved to Sarasoto, Fla., where he will have charge of a new hospital.——Dr. Charles M. Brown, New Marion, treasurer-elect of Ripley County, has filed a bond of $400.000.—Dr. Anthony E. Otto, Alexandria, fell on the ice at Orestes and broke his leg, January 16, while making a professional call.——On the occasion of the eighty-ninth birthday anniversary of Dr. W. H. Wishard, January 17, about 100 members of the Indianapolis Medical Society called on him and presented him with a testimonial engrossed on parchment.

IOWA.

Shelby County Medical Society held its annual meeting in Harlan, December 6. Dr. Mary C. Heilesen, Elkhorn, was elected president; Dr. Edwin B. Moore, Harlan, vice-president, and Dr. Frank H. Allen, Shelby, secretary-treasurer.

Marion County Medical Society held its annual meeting at Knoxville, December 8. Dr. Gaylord Worstell, Knoxville, was elected president; Dr. James L. Miller, Pleasantville, vice-president; Dr. Corwin W. Cornell, Knoxville, secretary, and Dr. John V. Brann, Knoxville, treasurer.

Hospital Control Transferred.—The Woman's Christian Association Hospital, Council Bluffs, has surrendered its control and management to the medical men of the city, who were represented by a committee consisting of Drs. Donald Macrae, Jr., Mathew A. Tinley and F. W. Dean.

Staff of Children's Home.—The following were elected as the medical staff of the Iowa Children's Home, Des Moines, at a meeting held January 16: Dr. James W. Cokenower, president and surgeon; Dr. James W. Osborn, secretary; Dr. William W. Pearson, ophthalmologist; Dr. Clifton Scott, neurologist, and Drs. Bernard J. Callahan, Wilbur S. Conkling, Roderic F. Watts, Francis A. Ely and C. A. Ayres, attending physicians.

New Hospital at Creston.—A new hospital, thoroughly outfitted, to be known as Mercy Hospital, is to be established in Creston, in the building formerly occupied by the Tait Sanitarium. The officers of the hospital association are: Hon. D. W. Higbee, president and counsel; Dr. Harry E. W. Barnes, vice-president; Dr. T. Elliot Tait, treasurer; Dr. John W. Reynolds, secretary, and Dr. J. W. Coakley, superintendent. The institution can accommodate forty patients.

KANSAS.

Personal.—Dr. Chilton W. McLaughlin, Kansas City, has returned after a trip to Europe.

Unlicensed Practitioner in Jail.—G. W. Knox has been convicted in Labette County of practicing medicine without a license and has been fined $50 and costs. On his refusal to pay the fine he was remanded to jail.

Communicable Diseases.—For the month of December there were reported to the State Board of Health 271 cases of diphtheria in 28 counties, with 35 deaths; 222 cases of scarlet fever in 32 counties, with 15 deaths; 426 cases of smallpox in 29 counties, with 1 death, and 120 cases of typhoid fever in 27 counties, with 31 deaths.

Acquitted.—In the case of Drs. Christopher C. Kesner and Gilbert G. Kesner, Leroy, charged with criminal carelessness in administering chloroform to and in performing an operation on Mrs. M. Short, the county attorney dismissed the suit, January 13.——Dr. E. P. Chase, Shawnee, charged with killing John Cahill, Aug. 22, 1904, was found not guilty, January 15.

New Hospitals.—The Salina Hospital and Training School for Nurses has been incorporated by Dr. William H. Winterbotham, Nathan D. Tobey, W. Scott Harvey, James R. Crawford, Manuel J. Brown, J. Harvey Winterbotham, Howard N. Moses, Andrew G. Anderson, Francis G. Lagerstrom, Edwin R. Tuttle, George Seitz and O. R. Britain. The staff is made up of the stockholders, but all licensed and ethical practitioners may send their cases to the hospital and attend them.——The new Arkansas City Hospital was opened for patients January 2.

KENTUCKY.

Senior Student Dies.—Hugh Adams, Madisonville, a senior student at the University of Nashville Medical Department, died January 16 at his home from tuberculosis, after an illness of a year.

Exonerated for Shooting.—Dr. Walter B. Gossett, Louisville, accused of unjustifiable assault on Dr. Henry B. Green and with shooting him twice, Nov. 7, 1904, was acquitted by a jury in the Circuit Court, January 19.

Smallpox Warning.—The State Board of Health estimates that in seven years there have been 25.000 cases of smallpox in the state, with 300 deaths, with a direct and indirect money loss to the commonwealth of $2,000,000, all of which might have been avoided and lives saved had vaccination systematically been practiced.

Personal.—Dr. Clyde Brady, Greenup, has been appointed an interne at the City Hospital, Louisville, succeeding Dr. William Fullbright, resigned.——Dr. William D. Powell, Harrodsburg, suffered a fracture of the clavicle and fractures of three ribs in an accident January 13, in which he was thrown from his buggy to the frozen ground.——Dr. Harry A. Davidson, Louisville, has been elected professor of physiology, embryology and chief of the gynecologic clinic in the Hospital College of Medicine.——Dr. Frederick G. Larue, Smithland, physician of Livingston County, fell and fractured his scapula and arm, January 11.

Railroads Will Clean Cars.—The controversy between the State Board of Health and the railroads of the state, in which it was claimed that the passenger cars were so superficially cleaned that they were common carriers of disease, has ended in the acceptance by the railroads of the following rules regulating the cleaning and care of cars used in the state, which have been drawn up by the board, and which will at once go into effect:

> All day coaches engaged in regular traffic shall be thoroughly cleansed after each trip at such points as facilities for the same have been provided. In no case shall such cleansing be less frequently performed than on every third day of use. In such cleansing, all rugs, mattings and upholstered seats and back rests, when practicable, shall be removed from the coach to the open air for mechanical cleansing, and be exposed to sunlight when the prevailing meteorological conditions will permit.
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> All interior surfaces in coaches are to be mopped, scrubbed or cleansed at intervals of not more than ten days, with solutions of mercury bichlorid, carbolic acid, tricreosol or other disinfecting preparations preferred by any corporation, and approved by this board as to ingredients and strength.
>
> Spittoons are to be provided in numbers of not less than one for each seat in all smoking cars and toilet rooms, and one at each end of all other day coaches, and in all waiting rooms. Placards provided by this board shall be displayed at each end of all such coaches and in all waiting rooms, indicating the importance of using the spittoons, and it shall be unlawful for any person to spit on the floor or platform of any railway car, or other public conveyance or on the floor of any waiting room or platform in any station or depot.
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> All coaches of any kind in which an acute infectious disease has been carried shall remain closed and unoccupied after such person has been removed until it has been thoroughly cleansed and disinfected by the use of formaldehyde gas in quantities of not less than forty fluid ounces of formalin to each coach. All day coaches in regular use for through travel are to be disinfected after cleansing by some method approved by this board at intervals of not more than ten days.
>
> All toilet rooms, water closets, urinals, spittoons and toilet appliances are to be scrubbed with soap and hot water and disinfected with formalin, or other approved method, after each trip's use, and shall be kept as clean as possible when on the road, and all similar rooms and in stations shall be cleansed daily in the same way, and when vaults or surface receptacles are used in stations these shall be disinfected daily with fresh lime.
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> All preceding regulations in regard to cleanliness and disinfection shall apply equally to sleeping, dining, buffet and parlor cars used in the service of the public.
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> All blankets, curtains and hangings used in sleeping cars shall be exposed to superheated steam, or other means of disinfection approved by this board at intervals of not more than ten days, and all mattresses shall be so treated at intervals of not more than sixty days.

MAINE.

Two-Thirds Insured.—In the fire at Brunswick, January 18, Dr. Goldbridge G. A. Stetson suffered loss amounting to $750, of which $500 was covered by insurance.

Bequest to Hospitals.—Macy S. Cope, Brookline, Mass., left by will $10,000 to Maine hospitals for free beds for patients from Washington County and specially from East Machias, his native town.

Epidemic Spinal Meningitis.—A camp of thirty lumbermen at Dover has been attacked by spinal meningitis. Five cases have occurred and three patients have died. The State Board of Health has assigned Dr. Galen M. Woodcock, Bangor, to investigate.

Eastman Sentenced.—Dr. Charles A. Eastman, Old Orchard, found guilty last July of manslaughter by an unlawful operation, withdrew his exceptions and was sentenced to be imprisoned one year at labor in the Alfred jail, the sentence to begin January 3.

MARYLAND.

Will Increase Medical Staff.—The medical staff of the Peninsula General Hospital, Salisbury, will be increased to include all the members of the local medical associations in Wicomico, Somerset and Worcester counties.

Personal.—Dr. Daniel P. Fahrney had a stroke of paralysis at Hagerstown, January 25.——Dr. Charles A. Wells, Hyattsville, who has been in active practice for the past 42 years, has retired to enjoy the fruits of his professional labors. Since retiring he has been elected president of the First National Bank of Lander, president of the Maryland Title Insurance and Investment Company, and president of the Maryland House of Correction.

Sheppard and Enoch Pratt Hospital Report.—The thirteenth annual report shows that 114 were admitted, 113 discharged and 105 remained under treatment at the end of the year. By the great fire last February thirteen pieces of the hospital's property were destroyed, and although the trustees had safeguarded their income by rental insurance, there will be a temporary impairment of income. Dr. Stewart Paton, who had been director of the hospital laboratory since 1899, went abroad in June and has since resigned, and Dr. Clarence B. Farrar has been made assistant physician and director of the laboratory. Dr. James H. Randolph of Florida was appointed clinical assistant, Dr. Chinn resigning to engage in private practice. Early in the summer the trustees authorized Dr. Brush to plan and equip apartments for hydrotherapy. Rooms, accordingly, were selected in the basement of one of the wings and the apartments will soon be ready for use.

Baltimore.

Osler Memorial Number.—The *Maryland Medical Journal* is preparing to publish an "Osler Memorial Number," June 1.

Personal.—William F. Frick, the founder and benefactor of the Frick Medical Library of the Medical and Chirurgical Faculty, died here January 26, aged 87.——Dr. S. Weir Mitchell delivered a lecture on "Lecturers," at Johns Hopkins, January 27.——Dr. Louis McLane Tiffany has gone to Florida on a hunting and fishing trip.

Hospital Report.—The annual meeting of the South Baltimore Eye, Ear, Nose and Throat Hospital was held January 25. During the year 2,065 patients were treated, white 1,917, colored 148; 10,878 visits to hospital and dispensary were made; 643 surgical operations were performed. A new site has been purchased for $13,000, consisting of a lot 90 by 200 feet, improved by a large brick residence.

The Dispensary's Work.—At the annual meeting of the board of directors of the Northwestern Dispensary the secretary reported 8,031 new patients, namely, 4,230 white and 3,801 colored; 1,166 patients were visited at their homes, and the total number of patients treated was 20,346. In the eye department 236 operations were performed; in the ear department, 51; in the nose and throat department, 30; in the surgical department, 134, and in the gynecologic department, 950. The following officers were elected: President, Dr. Arthur Wegefarth; secretary, Dr. Alexander D. McConachie; treasurer, Mr. William J. Klug; executive committee, Drs. A. D. McConachie, Frank A. Persohn and J. F. Travers.

MASSACHUSETTS.

Half Have Public Water Supply.—The State Board of Health has reported to the state senate that 172 of the 333 cities and towns of the state have now public water supplies.

Medical Inspection of Schools Demanded.—Another bill has been introduced into the state senate which authorizes the State Board of Education to provide medical inspection in all schools, such as is now provided by many cities and towns.

Brigham Will Valid.—The Supreme Court of the state has approved the validity of the will of Peter Bent Brigham, whose estate now amounts to $6,000,000, and unless the heirs carry the case to the United States Supreme Court this money will soon be applied to found and maintain a hospital for the poor, according to the terms of the will.

Medical Student Dies.—The dangers of medical practice or even study are exemplified in the sudden death of Joseph H. Converse, a student of Harvard Medical School. In the course of his work he exposed himself to cerebrospinal meningitis at the Boston City Hospital and within thirty-six hours of the first appearance of symptoms died from the disease.

Dispensary Report for 1904.—Reports from the 14 district physicians and the house staff of the Boston Dispensary shows that 93,578 patients were received at the dispensary during 1904, and 19,977 visits made at houses. They cordially commend the work of the nurses of the Instructive District Nurses' Association who work under them. Urgent need of new buildings is felt and efforts are being made to raise $100,000 for this purpose.

Embalmed Steak.—Six market-men in Boston were each fined $100 for selling hamburger steak which had been treated by preservatives. Their conviction was based on investigations of Dr. Harrington of the State Board of Health, who detected sulphite of soda. Experiments made by feeding cats with meat so preserved demonstrated marked degenerative disease of the kidneys and implies that this form of adulteration may be largely responsible for Bright's disease.

Would Abolish Noise and Smoke.—The topic of the annual meeting of the Association of Massachusetts Boards of Health, January 27, was "Noise." Prof. E. S. Morse read a paper on "Unnecessary City Noises;" Dr. Philip Coombs Knapp one on "The Effect of Noises on the Weak and Nervous," and Dr. James J. Patnam one on "A Comparison of the Different Sorts of Noises in Regard to Their Injurious Effect on the Nervous System." Strong resolutions were passed approving the bills now before the legislature for the abatement of the smoke nuisance in the metropolitan district.

Another Leper in Boston.—Another case of leprosy has been detected in Boston and the patient is quarantined on Gallop's Island. He is a Chinaman who has until recently been living in Newburyport. This makes four cases under care of the State Board of Health, three of whom, by courtesy of the Boston Board of Health, are quarantined on Gallop's Island, the fourth being in Harwich. The board has abandoned its plan to build a leper hospital on Cape Cod and has filed a petition with the state senate asking for a resolution calling on Congress to establish a national leprosaria.

Long Island for Chronic Diseases.—Dr. William T. Councilman of Harvard Medical School proposes that Long Island, in Boston harbor, be devoted exclusively to the care of chronic cases of disease. There is at present on the island a hospital of 300 beds. By removing the paupers now housed on the island their dormitories could readily be remodeled into wards to care for 400 other chronic invalids, and additional buildings erected and maintained at moderate expense. The main purpose of this change would be to furnish some adequate care for tubercular patients, a class now almost wholly neglected by the city authorities.

Milk Inspection Efficient.—To fill the place of Dr. Charles Harrington, who has succeeded Dr. Samuel W. Abbott as secretary of the Massachusetts State Board of Health, James O. Jordan has been appointed inspector of milk for Boston. So efficient has the work of this department become that there are a number of places in the city where milk comes by the carload daily, and where only a sample shows more than the 500,000 bacteria per c.c. allowed by the law, which went into force last June. Repeated warnings have been sent out and from this time on prosecutions will be started against violators, whether contractors, pedlers or shop keepers.

Deaths of the Last Fourteen Weeks.—Boston had during the ten weeks ended January 14, 2,060 deaths reported to the Board of Health, as against 2,077 during the same period a year ago, and an average death rate of 17.42 per 1,000 per annum. The report for the last week in 1904 was unusually low, as only 169 deaths occurred as compared with 231 last year, a rate of only 14.35 per 1,000. During this period of ten weeks there were reported 459 cases of diphtheria, with 45 deaths; 238 of scarlet fever, with 11 deaths; 145 of typhoid fever, with 31 deaths; 81 of measles, with 3 deaths, and 403 of tuberculosis, with 241 deaths. There were 322 deaths from pneumonia, 7 from whooping cough, 247 from heart disease, 82 from bronchitis, and 32 from marasmus. Of the fatalities 357 occurred in infants under 1 year old, 461 in those under 5 years of age, and 537 in individuals over 60.

NEW JERSEY.

Physician Injured.—Dr. Harry H. Sherk of Camden was severely injured as the result of his carriage colliding with an automobile, January 25.

To Combat Lodge Practice.—The physicians of Trenton have organized in order to break up the practice of treating lodge members and other organization people at contract rates. This method of treatment has become so general in Trenton as to warrant the step thus taken.

Hospital Report.—The annual report of the Camden City Dispensary shows that during 1904 1,266 patients were treated in the dispensary, 344 cases were treated at home, 1,933 visits were made to the dispensary, and 1,861 visits were made to residences; 10,664 prescriptions were dispensed.

Medical Society Election.—At the annual meeting of the Gloucester County Medical Society the following officers were elected: Dr. E. Mortimer Duffield, Glassboro, president; Dr. C. Frank Fisler, Clayton, vice-president; Dr. George E. Reading, Woodbury, secretary and treasurer, and Dr. W. Grant Simmons, Swedesboro, reporter.

NEW YORK.

Report on Niagara River Water.—Dr. Walter A. Scott, health officer of Niagara Falls, reported 288 cases of typhoid fever in the last year. Of this number 29 died of the disease. Of 266 medical cases in the Memorial Hospital 156 were typhoid fever. He classed Niagara River water as unfit to drink.

Stony Wold Sanatorium.—At the annual meeting of the officers of this sanatorium, which is located at Lake Kushaqua, in the Adirondacks, and was incorporated for the treatment of incipient tuberculosis of women, young girls and children, it was reported that 131 cases had been cared for since 1901, some staying over a year. It is the object of the institution to reach self-respecting persons who do without treatment rather than seek aid. There is the usual complaint that there are more to be cared for than present facilities can accommodate.

Care of Crippled and Deformed Children.—The fourth annual report of the New York State Hospital for the Care of Crippled and Deformed Children for the year ended Sept. 30, 1904, gives the following classification of diseases: Hip-joint disease, 16; white swelling, 3; major deformities of infantile paralysis, 5; Pott's disease of the spine, 4; congenital dislocation of the hip, 5; bowlegs, 2, and clubfoot, 7. Of these patients 17 were discharged; 5 of them were cured, 7 much improved, 3 as improved, 2 unimproved. There remained 25 in the hospital; of these 1 has congenital hip dislocation, 11 have hip-joint disease, 4 Pott's disease, 2 white swelling of the knee, 4 deformity from infantile paralysis, 2 bowlegs, 1 case of clubfoot. Of these patients 9 are girls and 16 boys. Out of the 42 cases treated 28 came from counties outside of New York and Queens. A new hospital is to be built at West Haverstraw, Rockland County, to cost $50,000, on a site of 50 acres overlooking the Hudson River.

Bills Before the Assembly.—Among the bills before the legislature are the following: A bill prohibiting the sale of proprietary medicines in the state, unless an analysis or formula specifying ingredients contained is printed on the label of the bottle or package. False analysis or failure to place formula on the outside of package is made punishable by a fine of not less than $50 nor more than $500, or by imprisonment of not less than one month nor more than six months. A bill providing for the establishment of a hospital for the treatment of habitual drunkards and victims of opium, chloral, cocain and other narcotics in New York City. This new hospital is designed to take the place of the alcoholic ward at Bellevue Hospital. A bill providing for an investigation into the purchase of a farm at Comstock, Washington County, as a site for the new State Hospital for the Insane and for which an exorbitant price was paid. It calls for the enactment of a law that will protect the treasury and its charitable and philanthropic interests from future injurious contracts and purchases. Senator Elberg again introduced his bill to abolish the office of coroner in New York City. This bill has been drawn up by Drs. Stephen Smith, Harry R. Purdy, E. Eliot Harris and James Taylor Lewis, counsel for the State Medical Association. It has been submitted to and approved by the legislative committee of the New York State Medical Association. The present coroners' physicians may become members of the new board of medical examiners under the civil service rules. The board is to be headed by a chief medical examiner, who will be directly responsible to the health commissioner for the work of the board. The duties of the board will be strictly those of physicians, leaving the legal and suspicious cases to be dealt with by the district attorney's office. This bill provides that a full report of each case must be sent at once to the district attorney's office, which will bring such cases as warrant it before a city magistrate. At present a coroner may be taken from any profession or trade. The members of the proposed board will have to prove their fitness by passing a rigid civil service examination. The recent arrest of Coroner Jackson, charged with having offered a bribe of $200 to one of the assistants of the district attorney if he would so shape a case of abortion that it could not be presented to the grand jury, and the defendant would have to be discharged by the coroner, illustrates how the office may be abused at present and may aid the cause of this bill, which has been defeated on two previous occasions.

Buffalo.

The Boy Wonder Again in Trouble.—Anthony Weichert, known as "Antonius the Boy Wonder," recently released from the penitentiary having served one year for conspiracy in defrauding people by promising to heal by the laying on of hands, etc., was rearrested on the charge of practicing without a license and remanded to jail.

Personal.—Dr. Frederic C. Busch resigned as assistant surgeon of the Sixty-fifth Regiment, N. G. N. Y., and Dr. Marshall Clinton was appointed to take his place.——Dr. Edward C. W. O'Brien. surgeon to the Fire Department, is critically ill with influenza.——Dr. James E. King, instructor in obstetrics. University of Buffalo, will spend a year in New York City in study.

December Statistics.—The monthly report of the Department of Health for December shows an annual death rate of 15.06 per 1,000. The principal causes were consumption, 39; measles. 12; septicemia. 6; typhoid fever, 8; debility, 44; alcoholism, 5; cancer, 20; apoplexy, 25; dementia, 7; meningitis, 7; valvular disease of the heart. 33; pneumonia, 68; gastro-enteritis. 6: nephritis, 36. and violence 29.

New York City.

Research Chemical Laboratory.—The department of health has decided to establish a research laboratory in the new laboratory building which is being erected where food and drugs will be examined by competent men and studies in purity made which will be of universal interest.

Anti-Spitting Brigade.—At a mass meeting of Brooklyn boys, designed as a missionary meeting to spread information relative to the spread of tuberculosis, an anti-spitting brigade was formed, with Dr. Darlington's approval, who announced on this occasion that Brooklyn was to have a new health department building.

Diphtheria on Staten Island.—There were 40 cases of diphtheria reported from Elm Park in a little over twenty-four hours. and an epidemic is feared. One public school has been closed. The health authorities say that a serious epidemic need not be feared as at this time last year there were 97 cases reported in the same period.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended January 20, 1905, 404 cases of tuberculosis. with 153 deaths; 360 cases of diphtheria, with 40 deaths; 289 cases of scarlet fever, with 14 deaths; 194 cases of measles, with 4 deaths; 179 cases of varicella; 50 cases of typhoid fever, with 12 deaths, and 30 deaths from cerebrospinal meningitis.

Effects of the Blizzard.—As a result of the severe weather there were six deaths from exposure and twenty street accidents, three of which were fatal. Cases of frostbite were treated by the hundreds at the various hospitals. The ears and hands of nearly two thousand of the street cleaners were frozen. The lobby of the Metropolitan Opera House was converted into a species of emergency hospital, where for a time policemen escorted those suffering from frostbite.

Work of the Pneumonia Commission.—Four additional workers have been added to the pneumonia commission. Dr. Norris of Bellevue has begun a series of experiments to determine how commonly the pneumonia germs are present in the air passages of persons who have died of some other disease and whether they are present in the air passages of persons who are killed when in good health. They are also experimenting in fifty different public school buildings in this city on methods of cleaning and the dust danger.

Not Pneumonic Plague.—The Red Star steamer *Vaderland* was sent back to quarantine by Dr. Doty. health officer of the port. because eleven deaths occurred in one compartment during the passage. The deaths were ascribed to pneumonia. but it was feared that the disease might be pneumonic plague. although this disease has heretofore only come from India. Bacteriologic examination failed to show the presence of anything other than ordinary pneumonia. and after thorough dis infection the passengers will be allowed to land.

Radium Cure Swindle.—The New York County Medical Society. with the assistance of a woman detective. have succeeded in having "Dr." H. H. Kane and his associates, "Drs." William H. Hale and William F. Horton, arrested and indicted on the charge of having swindled a carpenter out of $10.000. They claimed that his life could be saved by radium. and pretended to have used that drug. The alleged radium tube was analyzed at Lederle Laboratory. and found to contain ginseng, strychnin and a few other drugs found in most tonics, but no radium. There are a number of cases against these men by persons who have been swindled out of sums ranging from $100 to $2,500. They have been practicing under state licenses. The counsel for the county medical society secured an injunction restraining banks holding deposits of the men from paying out any money, and it is probable that some of the victims may be reimbursed.

Hospital News.—The proceeds of the German Charity ball. amounting to about $12,000, will be distributed among the German hospitals of the city.——Isaac Guggenheim has contributed $1,000 to Sydenham Hospital and has agreed to give monthly an amount equal to such sums as the board of directors succeed in raising through gifts up to and including the sum of $10,000 each year.——The plans have been filed for the new building of the Manhattan Eye, Ear and Throat Hospital, which is to be erected in East Sixty-third Street. The building will be twelve stories high, will accommodate about four hundred ward patients and fifty private patients. A feature of this hospital is its postgraduate department.——The New York Foundling Hospital has lost its case against eighteen citizens of Clifton, Ariz. The authorities of the hospital endeavored to recover children who had been placed in families in Phoenix, Ariz., by three sisters of charity. The Supreme Court has unanimously decided that as the children have homes, their best interests have been subserved. The attorneys for the petitioner preferred an appeal to the United States Supreme Court.

PENNSYLVANIA.

Personal.—Dr. Oscar Kniffler. Pittsburg, has moved to Göttingen, Germany, and will eventually settle in Wiesbaden.——Dr. Reinoehl Knipe, Norristown, has been re-elected physician to the Montgomery County prison.

Large Sum Asked for Charity.—The State Board of Charities in its biennial report recommends that $9,406,923.75 be appropriated to the state, semi-state and private institutions in the state for 1905 and 1906. The report stipulates that $7,227,804.10 shall be applied for maintenance, and that $2,179.119.65 for building. The total amount applied for by the various institutions throughout the state was $15,033,462.09, of which $8,947.264.34 was for maintenance and $6,086,197.75 for building. The board also recommended that $2,000,000 be appropriated for the maintenance and clothing of the indigent insane for the two years beginning June 1, 1905; that $50,000 be appropriated for the erection of an institution for the criminal insane on the grounds of one of the existing penitentiaries. In all 119 asked aid and 17 applications for assistance were disapproved by the board.

Crusade of Education Against Consumption.—The free lectures on consumption to be delivered under the auspices of the Henry Phipps Institute are now going on. The movement also will be started in the towns circumjacent to Philadelphia. Dr. Horace Cairncross of the Phipps Institute lectured before the Glassblowers' Union in Woodbury, N. J.. on this subject, January 27; Dr. Ward Brinton lectured to the textile workers on "The Home Treatment of the Disease," January 28, and Dr. Daniel J. McCarthy delivered a lecture on "Tuberculosis" in Oil City, February 1. Dr. McCarthy also lectured on this subject in the Deaconesses' Home, Philadelphia. January 25. Dr. Lawrence F. Flick of the Phipps Institute said that the institute is for the study. treatment and prevention of tuberculosis, and these lectures constitute one part of the educational side of the work. The lectures, he said. were requested by the lay organizations and this shows an enlightened interest in the subject, and that people are looking for truth in the matter.

Philadelphia.

Malpractitioner Sentenced.—Mrs. Elizabeth Ashmead. who was committed to jail by the coroner March 30, charged with malpractice, and who was recently found guilty, was sentenced on January 26 to three years in the penitentiary from date of commitment.

New Society Officers.—The Philadelphia County Medical Society, at its annual meeting January 18. elected the following officers: President. Dr. James M. Anders; vice-presidents. Drs. M. Howard Fussell. Alfred M. Eaton, Hilary M. Christian. Franklin Brady and Milton B. Hartzell; secretary, Dr. William S. Wray: assistant secretary. Dr. Ross H. Skillern; treasurer, Dr. Collier L. Bower. and censor, Dr. Judson Daland.

Personals.—Dr. Samuel Bolton was thrown from his sleigh in a runaway and sustained a slight concussion of the brain. He is slowly recovering.——Dr. John H. Jopson was recently elected to the surgical staff of the Presbyterian Hospital.——Dr. Milton J. Rosenau of the United States Public Health and Marine-Hospital Service, and director of the Hygienic laboratory at Washington, delivered a lecture at the Medico-Chirurgical College January 27 on "Tropical Anemia, with Special Reference to the Hookworm in Tropical Malaria."

Health Report.—The total number of deaths reported for the week aggregated 499. This is a decrease of 20 from those of last week, and a falling off of 63 from the corresponding period of last year. The deaths from pneumonia numbered 67, an increase of one over the previous week. There was a notable decrease in the number of diphtheria cases. In all 62 were reported, 33 less than last week. The principal causes of death were: Typhoid fever, 11; tuberculosis, 40; cancer, 12; apoplexy, 20; heart disease, 58; acute diseases of the respiratory tract, 155; enteritis, 23, and Bright's disease, 46. The total number of contagious disease cases aggregated 207, with 21 deaths, as compared with 231 cases and 24 deaths for the preceding week.

Free Public Lectures on Hygiene.—The Department of Medicine of the University of Pennsylvania has announced a series of free public lectures on the subjects of hygiene and medicine of general interest to practitioners and the public, to be delivered on Monday afternoons in the medical laboratories. This course was arranged especially for the fourth-year students, but invitations to attend the lectures are extended to the members of the medical profession of the city. Dr. Leonard Pearson, dean of the veterinary department, will deliver the first two lectures, February 6 and 13, on "Milk Supplies of Cities." On February 20 Dr. Jay F. Schamberg will speak on "Vaccination," and on February 27 will give a demonstration on the subject of "Eruptive Fevers." On March 6 and 13 Dr. Edward C. Kirk, dean of the dental department, will speak on "The Medical Relationship of Certain Dental and Oral Disorders." On March 20 Dr. A. P. Francine will speak on "The Restriction and Prevention of Pulmonary Tuberculosis." On March 27 Dr. R. Tait McKenzie, director of physical education at the university, will speak on "The Therapeutics of Exercise." Dr. Joseph Sailer will deliver the two closing lectures April 3 and 10 on "Hydrotherapy."

Course in Public Health.—The University of Pennsylvania will introduce into its curriculum, beginning October 1, a course in public health which will include instruction under the following headings:

Sanitary Engineering.—Including the subject of water supplies, sewerage systems, street cleaning, disposal of waste, etc.

Sanitary Legislation.—A study of the movement for sanitary reform and of the laws enacted relating to public health, and the methods of enforcement employed in Great Britain and the United States.

Inspection of Meat, Milk and Other Animal Products.—The methods of preparation and preservation of the same, the conduct of dairies, creameries, etc., and demonstrations of the diseases of animals transmissible to man.

The Sanitary Engineering of Buildings.—Including demonstrations of systems of heating, ventilation, plumbing and drainage, the study of plans, etc.

Social and Vital Statistics in the United States.—An examination of statistical methods and their results, with special reference to vital statistics and to city populations.

Practical Methods Used in Sanitary Work.—Including water, air and milk analyses, studies in ventilation and heating, investigation of the soil, methods of disinfection, sterilization, etc. (This is purely laboratory instruction.)

General Hygiene.—As applied to the community, including lectures on the causation of disease—exciting and predisposing, methods of prevention—including isolation, quarantine, natural and acquired immunity, protective inoculation, vaccination and the antitoxic state, methods of house disinfection and the means employed, suggestions for the organization of sanitary work, the influence of water supplies and sewage disposal on the public health, etc.

Personal Hygiene—Including the physiology of exercise, the adaptation of exercise to the various physical requirements, the use of exercise for the prevention and correction of deformities, the methods of examination and record keeping, the routine physical examination of growing children and the relation of air, food, bathing, etc., to health and development; the hygiene of the school room.

SOUTH DAKOTA.

Hospital Report.—Since its foundation in 1900, St. Luke's Hospital, Aberdeen, has cared for 845 in-patients, with 25 deaths.

Law Regarding Vital Statistics.—The legislature of South Dakota has passed a bill providing for the collection, preservation and publication of census and vital statistics and approprinting money for carrying this into effect. This is the first law in the state relating to vital statistics.

Compulsory Reports Recommended.—The Black Hills District Medical Association, which met at Deadwood, January 8, for its annual session, has proposed a bill advocating the compulsory report of all births and deaths under a penalty of $100 for failure, the physician making reports to receive a fee of 25 cents for each birth or death so reported. The following officers were elected: Dr. Adelbert H. Bowman, Deadwood, president; Dr. C. W. Hargens, Hot Springs, vice-president; Dr. Felix E. Ashcroft, Deadwood, secretary; Dr. Frank S. Howe, Deadwood, treasurer, and Dr. John W. Freeman, Lead, delegate to the state medical association.

GENERAL.

Yellow Fever on Naval Ship.—The U. S. cruiser *Boston* arrived at Panama from coast ports, January 25, with yellow fever on board. Two men are reported to have died, but no new cases have occurred beyond the seven reported first. The ship has been ordered north because of this occurrence.

Yellow Fever at the Isthmus.—The canal officials are reported to be taking extra measures to prevent the spread of yellow fever at the isthmus. They have a large problem to deal with, as the laborers and skilled employes, including women, who are arriving from the United States, are for the most part inexperienced and careless concerning tropical life and its dangers.

Dr. Kelly Asks for Material for Study.—Dr. Howard A. Kelly, 1418 Eutaw Place, Baltimore, writes that he is studying membranous dysmenorrhea, and says that since he is greatly in need of material, he will be indebted to any physician who will mail him casts of the interior portion of the uterus discharged by dysmenorrheic patients. The fresh specimen should be put in a bottle containing a 10 per cent. solution of formalin.

Pneumonia Rates of Chicago and New York.—The bulletin of the Department of Health of Chicago, compares the pneumonia mortality in New York and Chicago. For years New York has had a lower pneumonia rate than Chicago, but the recent increase there has temporarily reversed the conditions. In Chicago, in November, 1904, 260 deaths were reported from pneumonia, a daily average of 8.6. In New York, for the same month, 802 deaths from pneumonia were reported, a daily average of 26.7. In Chicago, during December, 451 were reported, a daily average of 14.5, while in New York 1,452 were reported, a daily average of 46.8.

Dr. Cushny Goes to England.—Dr. Arthur R. Cushny, for the past twelve years professor of pharmacology in the Department of Medicine and Surgery of the University of Michigan, has been made professor of pharmacology in the Medical Department of University College, London, as was announced in The Journal last week. Dr. Cushny graduated in arts and in medicine in the University of Aberdeen and then took up the special study of pharmacology with Professor Schmiedeberg at Strassburg, in whose laboratory he became privat docent. When Professor Abel left the University of Michigan in 1893 and went to John Hopkins, Dr. Cushny, whose research work had already attracted attention on account of its high degree of excellence, was called to Michigan to fill the chair of pharmacology. During his twelve years of residence in this country he has made many valuable original contributions to the science of his special subject. Some of his most important papers have been those bearing on the action of digitalis, caffein, spartein, saline cathartics and the atropin group. He has recently contributed to the *English Journal of Physiology* a series of researches on the physiology of, and the effect of medicinal agents on the action of, the kidney. He has made valuable contributions on the physiology of the mammalian heart and the interpretation of pulse tracings. His text-book on pharmacology received immediate recognition, and has already passed through several editions. In his departure from this country, America loses and England gains one of the most thorough scientific investigators in medical science.

CANADA.

Tuberculosis in Montreal.—Last year there were 634 deaths in Montreal from tuberculosis. It is expected that in the next few years the deaths from this disease may be materially decreased, owing to the work of the Montreal League for the Prevention of Tuberculosis, and to the adoption of stringent measures against people spitting on the streets and in public places.

An Association of Ex-House Surgeons of Toronto General Hospital.—Speaking of the reunion of the house staff of Toronto General Hospital of 1892-1893, Dr. Charles O'Reilly, the medical superintendent, said that since 1876 there had been 220 house surgeons in that institution, and of this number in the twenty-eight years but eight had died. The work of organizing an association of ex-house surgeons in connection with this hospital is progressing.

Typhoid Fever in Winnipeg.—The health authorities state that 135 deaths from typhoid fever were reported in Winnipeg during 1904, and Winnipeg has an estimated population of 75,000. The total deaths from all causes numbered 1,436. It is estimated that during the year over 2,000 cases of typhoid were reported. One of the Winnipeg newspapers counted 226 deaths reported from typhoid fever during 1904, as shown on the official register. This would make a rate of 3.01 deaths per 1,000 of population from typhoid, while the figures of the health authorities would make a rate of 1.8 per 1,000.

Personal.—Dr. J. F. W. Ross, Toronto, is spending the remainder of the winter in Southern California.——Dr. J. N. E. Brown, secretary of the Gold Territory, Dawson, has left Toronto to spend the next three months in Southern California.——Dr. George R. McDonagh, Toronto, has gone to the south of Italy, to remain three months.——Dr. W. H. B. Aikins, one of the editors of the *Canadian Practitioner and Review*, will spend the next three months in Vienna.——Dr. W. J. O. Malloch, Toronto, demonstrator of anatomy in the Medical Faculty of Toronto University, leaves March 1 for a two years' course in England.——Dr. Glen Campbell, Vancouver, B. C., has gone to Europe for a year's study.——Dr. Barrett of Dawson is visiting the hospitals of New York.——Dr. G. H. Manchester, medical superintendent of the New Westminster (B. C.) Insane Asylum, will resign and a new superintendent will be appointed March 1. Dr. W. T. Williams of St. Thomas, Ont., will go to the Bahama Islands shortly, having been appointed quarantine officer and medical health officer for the island of Inagua.

FOREIGN.

German Naturforscher Congress.—The German Naturforscher Congress is to meet this year at Meran, September 24 to 30.

Vaccination in the Ottoman Empire.—On April 18, 1904, a law went into force in Turkey making vaccination and revaccination compulsory.

French Congress of Climatotherapy.—The second French Congress of Climatotherapy and Urban Hygiene will convene at Arcachon April 24, and will adjourn to Pau for the closing meeting, April 29. The French railroads allow half-fare rates to members and their families. Dr. Dechamp, Villa Tibur, Arcachon, has charge of the arrangements.

Hirschberg's Anniversary.—Prof. J. Hirschberg of Berlin, the well-known ophthalmologist, recently received a *Festschrift* from his friends and pupils on the twenty-fifth anniversary of his professorship. It contains a number of works by prominent ophthalmologists of various countries. One of the cabinet ministers and delegates from a number of scientific societies were present at the ceremony of presentation.

International Congress of Anatomy.—The international committee representing the foremost societies of anatomy in the world, met at Geneva, December 20, and made arrangements for the first international federative congress of anatomy. The date was appointed as Aug. 7 to 10, 1905, with Geneva as the place. Cristiani and Batelli of Italy are members of this committee. Romiti of Pisa is the official delegate.

Results of Antimalaria Campaign on Roman Campagna.—In the official annual report of the Red Cross, which has charge of this work, we note that 11,962 persons received prophylactic quinin treatment and only 67 exhibited primary malarial fever. There were 313 cases in which malaria recurred in persons formerly subject to it. This is a total of only 380 cases in one of the worst hotbeds of malaria in Italy.

Life Insurance of Children Forbidden in France.—The Académie de Médecine of France and the Société Royale de Médecine of Belgium have proclaimed the abuses liable to follow the insurance of the lives of infants and children. Communications were presented before these bodies showing the evil results of this custom, which seems to be widely prevalent in northern France. The French government has enacted a law which prohibits all insurance payable at the death of children under 12.

Opening of the Vegetarian Orphan Asylum.—Berlin declined the legacy left by Baron, a member of the law faculty at Bonn, for the erection and maintenance of a home for destitute children to be conducted on vegetarian principles. The city of Breslau offered to accept it, basing its acceptance on Flügge's statements that the small amount of meat which the poor are able to afford can be effectually substituted and surpassed by milk and eggs. The asylum is now complete and was recently inaugurated.

Campaign Against Irregulars in Germany.—The medical profession in Germany has been conducting a more or less well organized campaign against irregulars for the last few years. Germany has been made too hot for many of the latter, and recent letters from Switzerland complain that they are flocking into that country. We mentioned in these columns recently the bold attempt made by the irregulars located at Zurich to influence legislation to allow them a free hand. The matter was decided by popular ballot and the measure was defeated by a large majority. One of the most potent means used by the profession in Germany in their campaign is what they call "press committees." A number of the large cities now have these committees, and the one at Munich has been in operation since 1901. It was founded by Cramer's efforts, and consists of nine physicians, who are thoroughly posted and ready writers. Medical meetings, etc., to which the lay press was in the habit of sending a reporter, were written up by a member of the committee and copies were sent to the newspapers. The latter were urged to refer to the committee all copy relating to medical matters, dubious ads, etc., and the press clipping bureaus kept the committee posted on what might otherwise escape them. The newspapers consented to this arrangement, and co-operated in most instances with the committee. Excellent results have been obtained in the matter of swindling advertisements. Many of them were discontinued by the papers on the recommendations of the committee. Others that were still carried were accompanied by a warning in the editorial pages. The committee investigated the standing of irregulars and wrote them up for the papers, and when criminal or other proceedings were instituted against them the committee sent in articles discussing the case and emphasizing its instructive points. A member of the comtee was also appointed to attend the assemblies of irregulars, to join in the discussions and to report the meeting for the newspapers. Dr. Max Nassauer's detailed account of the work of the Munich committee was published in the *Aerztl. Vereinsbl. f. Deutschland*, 1903, No. 498. An epitome of it is given in the last *Prag. med. Wochft.*, accompanied by an urgent appeal from Kantor for the organization of a similar committee in Bohemia. The idea is for each town and county to form a network of similar committees to unite for a common campaign against irregular practices. The Munich committee did not hesitate to write up disparagingly the unethical advertising of one colleague, a lung specialist, and another who advertised his "ocularium" in an undignified manner. The prompt and solid organization of the profession in Munich when the troubles with the sickness insurance societies (*Krankenkassen*) were impending a year ago, was undoubtedly one of the results of the work of the press committee. The equally prompt acquiescence of the insurance societies in the just demands of their medical officers, forestalling their resignation, may likewise be attributed to the influence exerted on the public by the untiring labors of the press committees. The *Allg. med. Cent.-Ztg.* publishes each week the suits instituted against the irregulars throughout Germany. There are always at least two or three: they are brought for swindling advertisements or for cheating by selling medicines at prices altogether out of proportion to their cost, or for personal injury from their practices. The sentences are fines of from $10 to $300 and imprisonment for from a week to six months or even two years. The last issue brings an account of a suit brought by Dr. P. Manasse of Berlin against an editor, R. Gerling, who has championed the cause of the "nature healers," and at a public meeting at which Manasse was present, he denounced the medical profession, remarking that he considered the majority of physicians as capable of any crime, any treachery and any wickedness. The prosecuting attorney (*Staatsanwalt*) demanded the imprisonment of the speaker, as a money fine was not adequate punishment for such assertions. The defendant was sentenced to one month in prison and the costs of the suit, which were large, and he was ordered to publish the account of the proceedings in his own journal.

Correspondence.

Iodin-Carbon-Disulphid Inhalations in Respiratory Diseases.

Columbia, Ala., Dec. 3, 1904.

To the Editor:—In the *New York Medical Journal*,[1] April 25, 1896, Drs. Stovall and Twitty report results from the use of iodin-carbon-disulphid inhalations in respiratory diseases. I have tested the remedy in my practice and offer the results to the profession in the interest of a subject which is closely related to the welfare of all classes of people. The profession is slow to accept new theories or methods of treatment, but this treatment has proved in my hands a most useful agent in combating the various laryngeal, bronchial and pulmonary disorders; and physicians elsewhere, after testing its merits, have spoken in unmistakable terms with reference to its practical value.[2]

Professor Coromilas,[3] at a meeting of the Chicago Medical Society, gave his conclusions, reached after treating a test series of 66 cases by the hypodermic administration of carbon disulphid. The results were eminently satisfactory, enabling him to use the word "specific" in estimating the value of the compound. The following is a summary of his investigations:

1. The disulphid of carbon as administered by him has no disagreeable results.
2. Because of its parasitic, antizymotic, antiseptic and inoffensive action, it is capable of penetrating all tissues and in this manner cures tuberculosis.
3. It has a strong action against the bacillus of tuberculosis.
4. It should not remain unknown, but should take its place in therapeutics as one of the specifics of our time, capable of doing immense service to suffering humanity.

While I am disposed to discredit the use of the word "specific," yet the professor's conclusions are practically identical with my own, as well as with those previously enunciated by Drs. Stovall and Twitty. There can be no doubt of the value of the hypodermic administration of this preparation as a means of impressing the system, but as the professor claims that the disulphid is strongly antagonistic to the tubercle bacillus, it would seem reasonable to suppose that inhalation would be the most direct method of application in phthisis pulmonalis. My colleagues in this city advance this argument, in writing on the subject, claiming, as they do, the superiority of the direct method by inhalation. In my own opinion the addition of iodin, as they suggest, adds very much to the therapeutic value of the remedy; this combination precludes its use hypodermically and has an agreeable effect on the solution when used as an inhalant.

Because of the difficulty of performing intratracheal injections the services of a laryngologist are often required when this procedure is necessary.

It is not my intention to go into details appertaining to any particular phase of the subject, but rather to impress on the profession the great value of this new remedy, which, with hygienic measures, is of great assistance in battling against respiratory diseases. The physicians to whom I have referred as originators of the idea have given their experiences in detail in contributions to different journals, as well as having issued a pamphlet explanatory of the method. I will not consume time and space with clinical histories, but will say in conclusion that physicians who are interested in the treatment of respiratory diseases will do well to study closely this method of treatment, and that Drs. Stovall and Twitty will take pleasure in replying to any correspondence.

C. L. C. Atkeson, M.D.

[Editor's Note.—Dr. Atkeson does not give instructions nor technic regarding the use of this preparation. To remedy this omission we repeat the description which was quoted from Drs. Stovall and Twitty in The Journal, June 13, 1896: "We are quite positive that by deep inspiration the remotest recesses and apical caseations are reached. The good effects are manifest during the first day's trial, and the night cough which is so troublesome and exhausting is much improved; and this is among the first benefits derived. Expectoration is lessened in quantity and the quality is made decidedly better in a short time. The sulpho-carbon compound is put down as poisonous, and we have watched very closely for any untoward symptoms attributable to its inhalation, but, so far, have failed to note any objection to its use under proper precautions and directions from the physicians. About a 12 per cent. solution, or, more accurately, one of a dram of iodin to the ounce of disulphid, is what we have used in practice. (Later recommendation is as follows: The strength of the solution varies from 10 to 60 grains of iodin to the ounce, according to special requirements, deep-seated disease indicating a stronger percentage of iodin than does catarrh of the upper tract. The weaker solutions also admit of nasal inhalation as well as oral.) Owing to the solubility of rubber and kindred matter in the disulphid, it is rendered inadmissible as material for an inhaler, which should be made of glass preferably. A cheap, convenient instrument may be improvised by using a small test tube with a sponge in the bottom saturated with the liquid; it will be necessary to replace the sponge frequently, because of the corrosive action of the medicine. For lung and laryngeal treatment, the inhalation is to be made through the mouth with the instrument pushed far back, approximating the opening of the larynx. The frequency with which it may be used is variable according to the individual condition and effects; we may say, on an average, once every two hours during the day. The disulphid has a bad odor which is objectionable to some patients. We have experimented with a view to rendering it more agreeable and have made various additions and modifications, resulting with no advantage considerable enough to justify the use of anything additional, inasmuch as such a change might possibly lessen the practical value of the original formula. Menthol is perhaps the best harmless addition that we have attempted (15 grains to the ounce). We should be very glad if the profession would prove the efficacy of the treatment and report the results." Drs. Stovall and Twitty have since advised the use of the bent tube inhaler, known as the Giarth modification. They give the following directions for use: "The fluid is dropped to saturation on the gauze, avoiding using an excess; also being careful that it does not come in contact with the cork inserted in the end of the inhaler. When ready for use (mouth inhalation) hold the tube two or three inches from mouth, inhaling carefully, avoiding as far as possible the induction of violent fits of coughing which a too vigorous application of the fluid might produce. By beginning cautiously the patient will be more easily controlled and the sooner will become accustomed to its vigorous application. It is very necessary to know and to inform the patient that a few inhalations even may give rise to unpleasant sensations, such as vertigo, or fullness about the head, which should serve as a warning to stop inhaling until these sensations pass off. Usually the vertigo is only transient, and a few moments will witness a return to the normal state. As a rule, one can draw five or six deep inspirations, rest a short time and repeat. Unless the cough is too violent or other bad effects supervene, the patient may be allowed to repeat the inhaling act five or six times at one sitting. It is always advisable to have the patient in half reclining or sitting posture. Every four hours during the day is often enough, in the beginning, to take the treatment. As toleration is established, it may be advisable to use every two hours, if no contraindication presents itself."]

Insane Wards in General Hospitals.

Pittsburg, Pa., Jan. 27, 1905.

To the Editor:—In his interesting description of the new City Hospital of Nuremburg,[1] Dr. Barker mentions that 31 of its 946 beds are allotted to insane patients. One could wish that he had furnished some information as to just how this division of the hospital is equipped and how it is managed, for, in my opinion, the attempt to treat disease which exhibits "insanity" as a symptom or group of symptoms in a general hospital marks a distinct step in advance. It is an effort to follow out in practice the theory that "insanity" is a manifestation of sickness, as is headache or edema or convulsions or vomiting or paralysis, dependent, like any of these symptoms, on underlying bodily alterations. To treat "insanity" in a general hospital is an object lesson, to the profession and laity alike, of immense value. In no other way, I believe, is it so apt to be studied on a proper basis by physicians; and by no other method may we hope to do so much to combat the old idea of the laity that "insanity" is a curse or disgrace, and to teach them that it is one of many manifestations of bodily disease in which the brain shares. By no other plan are "insane" patients so apt to be brought early for hospital treatment. The plan has far more to commend it than that of pure psychopathic hospitals unattached to general hospitals, which by the laymen will doubtless be called "insane asylums" no matter how modern their methods, and to which the old-time stigmata will doubtless attach. For some ten years I have been one of the visiting physicians to the insane department of St. Francis Hospital of this city, and on the basis of this experience I have ventured the foregoing observations. I do not know of another general hospital in this country like St. Francis of Pittsburg with an insane department as an intimate part of a general hospital. I am convinced that much good would result if one or more hospitals in each large city of the country would provide wards (properly equipped, of course) for a few insane patients. Acute cases only should be taken. Theodore Diller.

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[1] Drs. Stovall and Twitty: "Inhalations of Iodin and Carbon Disulphid in Tuberculous Pulmonary Disease."

[2] E. g., Dr. Giarth: Philadelphia Med. Council, Aug., 1904.

[3] Prof Coromilas, Athens, Greece: The Journal, Nov. 26, 1904.

[1] The Journal A. M. A., Jan. 14, 1905.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

Philadelphia, Jan. 28, 1905.

To the Editor:—I have been much interested in the letter in The Journal, Jan. 28, 1905, p. 307. It is not necessary for the correspondent to make known his local habitation or his name. It is, indeed, a condition that confronts us, not a theory. Many a gray-haired college professor will recognize the picture, and say sadly, with Sir Andrew Aguecheek, "That's me, I warrant you." In the present rapid onward rush of scientific progress few, if any, teachers at the end of twenty years can represent the existing state of their science. The question, however, arises at once as to what constitutes up-to-date teaching. The charges that A. B. C. brings are not entitled to consideration unless itemized. It is easy for some junior to assert flippantly that "Dr. X. is an old fogy," and it is also easy to develop a spirit among students that will lead to murmurs against the senior teacher. Instructors, demonstrators and quiz teachers are brought into close personal relations with students and are often possessed of considerable personal magnetism. The desire to succeed to the chair may be very strong, and the medieval method of poisoning the "old man" being no longer available, the safer and often effective method of poisoning the minds of his pupils and his colleagues is carried out. The charge of the teaching being behind the times could be used to vacate the larger proportion of professional chairs. How many competent teachers of botany are still teaching that stamens and pistils are sexual organs? Yet the view is quite abandoned by many biologists. On the other hand, the periodic system in the classification of elements practically dominates chemistry to-day, yet Berthelot considers it as comparable in its absurdity to the views held by the alchemists. When I was a student at Jefferson College Dr. S. D. Gross, easily first among American surgeons, taught with great positiveness that soft and hard chancre are due to the same virus. He stood almost alone in this respect. His colleagues and his principal assistant knew his error, and knew the practical objection to the view, yet an effort to displace him on this account would have found very few supporters. I fear that from the very nature of the case your correspondent can not give us the data. The name and place, as I have said, are of no moment. We ought to have specific instances of shortcoming. Does the professor teach the uric acid theory of gout? Does he hesitate to accept the recent views as to the nature of the proteid molecule? Does he insist that some of the long-known vegetable alkaloids are as efficient as the popular coal-tar synthetics? You are right, Mr. Editor, in pointing out that the sore spot in A. B. C.'s college is in the weakness of the colleagues. What is the condition in a college when a respectful petition presented by students could lead to their expulsion? I fear that if the accused professor is not up-to-date in his science he is quite so in some of his business methods. It is not necessary to say that the college is not in Russia; in every large city in this country at least one representative of the type will be found. Henry Leffmann.

GRATUITOUS SERVICES BETWEEN PHYSICIANS AND DENTISTS.

X. says that he attended a dentist's wife and that the dentist objected to the bill for services, claiming at first that the charge was too large and later claiming that it is improper for physicians to charge anything for services rendered dentists. X. says he can not find that any of the physicians in his city have ever been treated gratuitously by physicians or have been in the habit of rendering gratuitous services to dentists. X. asks for information. In some localities physicians and dentists render services to one another gratuitously. The usual custom is to give a discount. X. also details the operations, etc., included in the services referred to, and asks if his charges were not very moderate. We prefer not to express an opinion, but to leave this point to be decided on the basis of the custom of the profession of X.'s city, both as to scale of fees and as to discounts, etc., to the dental profession.

LICENSE TO PRACTICE IS PERMANENT.

Hebbardsville, Ky., Dec. 27, 1904.

To the Editor:—Feb. 11, 1903, the State Board of South Dakota granted me license to practice medicine in that state. Since then they have passed some stringent laws. Have I the right to practice medicine under the license I hold without any further examination? L. O. Jones.

Answer.—Yes; although Section 22 of the medical practice act of South Dakota states specifically that the new act, which went into force March, 1903, is not applicable (among others) "to resident physicians and surgeons of this state regularly licensed and practicing in this state at the time of the taking effect of this act."

Marriages.

Charles H. Sherman, M.D., to Mrs. M. E. Herrington, both of Dallas, Texas, January 15.

Basil M. Taylor, M.D., to Miss Cora Bartlette Corte, both of Greensburg, Ky., January 18.

Henry T. Bray, M.D., to Miss Elizabeth V. O'Connell, both of New Britain, Conn., January 11.

George F. Paine, M.D., St. Louis, to Miss Dorothy Frye of Salida, Colo., at St. Louis, January 22.

George W. Crosby, M.D., to Miss Rosa Hall, both of Sheboygan, Wis., at Milwaukee, January 16.

J. Alexander St. Pierre, M.D., Three Rivers, Que., to Miss Blanche Barsalon of Montreal, January 26.

Bert Rodenbaugh, M.D., Barberton, Ohio, to Miss Grace Robinson of Youngstown, Ohio, January 3.

Romeo Roderick Stevenson, M.D., Sioux Falls, S. D., to Miss Emilie F. Avery of Chicago, January 25.

William A. Brock, M.D., Leesburg, Ky., to Miss Sallie E. Nichols of Silas, Ky., at Lexington, Ky., January 18.

Seth Marion Billings Smith, M.D., Crandon, Wis., to Miss Elizabeth Porter of Wausau, Wis., January 25.

E. Julius Boeber, M.D., Kansas City, Mo., to Miss Helen Moeller of Kiel, Germany, at El Paso, Texas, January 18.

T. Robert W. Wilson, M.D., Baltimore, to Miss Lillian B. Thackston of Greenville, S. C., at Baltimore, January 17.

Deaths.

William Harrison Jones, M.D. Howard University Medical Department, Washington, D. C., 1887, a prominent colored physician of Harrisburg; a member of the American Medical Association, and at one time president of the Harrisburg Academy of Medicine, died at his home in Harrisburg, January 19, from pneumonia, after a short illness, aged 46. At a special meeting of the Academy of Medicine, remarks eulogistic of the deceased member's private and professional life were made by Drs. Hugh Hamilton, Hiram McGowan, David S. Funk, John W. Ellenberger, John F. Culp and Jerome Z. Gerhard.

Cordelia A. Greene, M.D. Medical Department of Western Reserve University, Cleveland. Ohio, 1857. of Castile. N. Y., a member of the American Medical Association, New York State Medical Association, Wyoming County Medical Society and Physicians' League of Buffalo. died January 28 in the Presbyterian Hospital, New York City, a week after an operation.

Patrick J. McGrath, M.D. Northwestern University Medical School. Chicago, 1894, until a short time ago a member of the staff of the Manhattan State Hospital. Central Islip, Long Island, N. Y., and waiting orders to go to Panama as surgeon in the Canal Zone, was killed January 28 by falling from a sloop near his boarding place in New York City.

Francis D. Edgerton, M.D. College of Physicians and Surgeons in the City of New York, 1864. formerly president of the Connecticut Medical Society; consulting surgeon to Middlesex County Hospital; assistant surgeon of the Twenty-first Connecticut Volunteer Infantry during the Civil War, died at his home in Middletown, January 19, aged 67.

Otis Eugene Hunt, M.D. Berkshire Medical College, Pittsfield, Mass., 1847; for several years secretary of the South District Middlesex Medical Society, and president or secretary or a member of the Newton Hospital Medical Board since its foundation, died at his home in Newtonville, Mass., January 20, aged 82.

Richard Cheatham, M.D. Bellevue Hospital Medical College. New York City, 1877, a member of the American Medical Association; member of the Nashville Board of Health and city health officer for several years, died suddenly from cerebral hemorrhage, January 21, after a long period of ill health, aged 49.

Virginius G. Hitt, M.D. University of Virginia. Richmond, 1863, of Atlanta, Ga., for several years secretary of the Association of Surgeons of the Confederate Army and Navy, died in the Presbyterian Hospital. Atlanta, January 15, from organic heart disease, aged 63.

Edwin Hellyer, M.D. Long Island College Hospital. 1864. died at his home in Kensington. Philadelphia. January 16. from pneumonia. He served as surgeon in the National Guards Hospital during the Civil War. and was visiting physician of the Penn Widows' Asylum.

Joseph R. Duncan, M.D. Cincinnati. 1859. assistant surgeon of the Eleventh Iowa Volunteer Infantry and surgeon of the Forty-sixth Iowa Volunteer Infantry during the Civil War. died at his home in Crawfordsville. Ind., January 21. after a lingering illness, aged 77.

George Whitaker Reed, M.D. Vanderbilt University Medical Department. Nashville. Tenn., 1895. a member of the American Medical Association. postmaster at Biltmore. N. C., died January 10 at his home in South Biltmore, after a long illness, aged 46.

Samuel J. Weaver, M.D. Jefferson Medical College. Philadelphia. 1872. died suddenly at his home in Bethlehem. Pa., January 18. from angina pectoris, aged 54. Dr. Weaver was surgeon to the Lehigh Valley Railroad and coroner of Northampton County.

Frederick W. Richardson, M.D. Long Island College Hospital. Brooklyn. N. Y., 1885, acting assistant surgeon United States Army, formerly of St. Paul. Minn., died at Ligao. Albay. Philippine Islands, January 26, from accidental wood alcohol poisoning.

Edward Valencourt Deuell, M.D. University of Louisville, Ky., 1864. surgeon in the Army from 1863 to 1869. of Saratoga Springs. N. Y., died suddenly. January 20. while giving testimony in court at Saratoga, from cerebral hemorrhage. aged 63.

George C. McFarland, M.D. Rush Medical College. Chicago, 1863, surgeon during the Civil War. for many years proprietor of Oak Lawn Retreat, Jacksonville, Ill., died suddenly in his room in Jacksonville from heart disease, January 16, aged 64.

Joseph A. Cantrelle, M.D. Tulane University of Louisiana Medical Department. New Orleans, 1850. physician of the Howard Society during the yellow fever epidemics of 1857 and 1878. died at his home in New Orleans, January 19, aged 77.

Robert Murray Riddell, M.D. Manitoba Medical College. Winnipeg. and for two years a member of the house staff of Winnipeg General Hospital, died in that institution January 22 from typhoid fever. after an illness of two weeks, aged 38.

George Andrew Campbell, M.D. Faculty of Medicine of Queen's University, Kingston. Ont., 1859, deputy inspector-general of hospitals and fleets. Royal Navy, died at his home in Ealing, near London, England, January 16, aged 68.

Jacob W. Lowman, M.D. Medical College of Georgia, Augusta, 1858, some-time representative in the legislature from Lexington County, S. C., died at his home in Orangeburg, January 15, after a prolonged illness, aged 68.

Joseph A. O'Neill, M.D. Albany (N. Y.) Medical College, 1897, acting assistant surgeon United States Army, was killed during an attack of ladrones on the town of San Francisco de Malabon, Philippine Island, January 24.

Thomas M. Weadock, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1872, a member of the Allen County (Ohio) Medical Society, died from cholemia at his home in Lima, January 20, aged 66.

Phineas S. Rose, M.D. Albany (N. Y.) Medical College, 1863, surgeon of the One Hundred and Seventy-ninth New York Volunteer Artillery in the Civil War, died at his home in Pasadena, Cal., January 19, aged 66.

Robert Wolfgang Schoenle, M.D. University of Louisville Medical Department, 1890, formerly of Seattle, Wash., died at Pasadena, Cal., January 24. from tuberculosis, after an illness of several years, aged 36.

Nathaniel Stacy Tafft, M.D. Cincinnati, 1852, who served several times in the state legislature, and was the oldest practitioner in Wabasha County, Minn., died at his home in Plainview, January 21, aged 74.

Alfred M. Bird, M.D. Illinois State Board. 1878, twice alderman and twice mayor of Mason City, Ill., died at his home in that city, January 25, from cerebral hemorrhage, after an illness of one year, aged 62.

Augustus J. Hofling, M.D. Miami Medical College. Cincinnati. 1899. secretary of the West End Medical Association, and district physician, died at his home in Cincinnati, January 22, from diabetes, aged 47.

James C. Bowser, M.D. McGill University Medical Department. Montreal, 1883, died at his home in Rexton, N. B., Canada, January 12, from consumption, after an illness of three years, aged 45.

Harry W. Spence, M.D. Toronto University Medical Faculty. 1898. M.R.C.S. England, who served with an English regiment in the South African War, died at his home in Ottawa, Ont., January 24. aged 29.

William M. McKemy, M.D. Bellevue Hospital Medical College. New York City. 1891, died from the effects of a self-inflicted bullet wound through the lungs, at his home in Pecos, Texas, January 23.

John B. Fuller, M.D. Texas Medical College and Hospital, Galveston. 1874, died at the house of his son in Jacksonville, Texas, January 18, after a prolonged period of ill health, aged 78.

Thomas Lafayette Lafon, M.D. Jefferson Medical College. Philadelphia, 1885, died at his home in La Grange. Mo., January 25, from consumption, after an illness of five years, aged 41.

Henry F. Hendrix, M.D. St. Louis Medical College. 1874, a strong advocate of hydrotherapy in infantile disease, died at his home in St. Louis, January 29, from cerebral hemorrhage, aged 61.

Storrs Hall, M.D. Medical Institution of Yale College. New Haven, Conn., for many years a practitioner of Rosendale, Wis., died at the home of his son in Ripon. Wis., January 13 aged 90.

Eugene S. Rice, M.D. New York City. 1879. coroner of Fountain County, died at his home in Wallace. Ind., January 14. from injuries received in a fall three days before, aged 4[illegible].

Jonathan Nichols, M.D. Albany (N. Y.) Medical College, 1848. a pioneer resident of Atlantic. Iowa. died at Los Angeles, Cal., from hypertrophy of the heart. January 17. aged 78.

Mark Harrison Ragsdale, M.D. Medical College. Indianapolis, 1875. of Alfordsville, Ind., died at the home of his son in Washington, Ind., January 14, from pneumonia. aged 68.

G. Granville Faught, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879. died suddenly at his home in Philadelphia, January 25, aged 52.

James R. Brewer, M.D. Vanderbilt University Medical Department. Nashville, Tenn., 1878, a pioneer of Muskogee, I. T., died Dec. 30, 1904, at Santiago, Cal.

Joseph A. Anthony, M.D., a veteran of the Mexican War, died January 20 at his home in Terrell, Texas, from the effects of a fracture of the hip, aged 77.

Henry Ullyot, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1869, died at his home in Elmira, Ont., January 18, from pneumonia, aged 61.

Edward Howard Craven, M.D. Jefferson Medical College, Philadelphia, a retired physician, died at his home in Philadelphia, January 19, aged 82.

Frank McCormick, M.D. Toledo Medical College, 1895, of Fremont, Ohio, died at the home of his sister in Muncie, Ind., after a long illness, aged 53.

Reginald Percy Vivian, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1900, died at his home in Barrie, Ont., Dec. 8, 1904, aged 30.

Hugh B. McConnell, M.D. Trinity Medical College, Toronto, Ont., 1891, of Boston, died at his home in West Somerville, Mass., January 25, aged 34.

Wesley R. Davis, M. D., a retired physician of Stephens City, Frederick County, Va., died January 26 at Memorial Hospital, Winchester, Va., aged 60.

Eli W. Free, M.D. College of Physicians and Surgeons, Baltimore, 1847, died at his home in Baltimore, January 27, from heart disease, aged 80.

Lyman Wells Ranney, M.D., retired, died at his home in New Castle, Pa., January 12, from the effects of morphin taken accidentally, aged 85.

W. J. Dobbins, M.D. 1844, a practitioner of California in 1850, died at his home in Vacaville, Cal., January 3, from kidney disease, aged 81.

Archibald S. Kirkland, M.D. University of the Victoria College, Coburg, Ont., 1869, died at his home in Collingwood, Ont., Dec. 9, 1904, aged 60.

John W. Futrell, M.D. University of Louisville, Ky., 1872, died at Shawnee, Okla., January 20, after an illness of a year, aged 53.

Frank B. Jones, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1872, of Petersburg, Mich., died recently.

William Jackson, M.D. Chicago, 1891, died at his home in Climax, Mich., January 14, after an illness of three days, aged 59.

Albert Ellison, M.D. New York University, New York City, 1888, died at his home in Benton Center, N. Y., Dec. 20, 1904, aged 45.

Charles G. Sprague, M.D. New York, 1880, of Omaha, died at his farm near Leroy, Neb., after a long illness, January 18, aged 66.

Arthur Toal, M.D. Detroit College of Medicine, 1887, died at his home in Peck, Mich., January 24, from angina pectoris, aged 49.

Henry M. Flanigan, M.D. Philadelphia, 1875, died suddenly from heart disease at his home in Penn's Grove, N. J., January 9.

John F. Heinze, M.D. Missouri, 1878, died at his home in St. Joseph, Mo., January 20, from cerebral hemorrhage, aged 76.

Horace G. Anderson, M.D. Iowa, 1881, died suddenly at his home in Nathrop, Colo., January 11, from nephritis, aged 46.

John W. McAllister, M.D. Medical College of Indiana, Indianapolis, 1895, died at his home in Idaville, Ind., January 20.

John B. Brooker, M.D. New York City, 1894, died at his home in Mayfield, N. J., last week, after a long illness.

William Grant Mitchell, M.D. Guy's Hospital, London, England, died recently in Victoria, B. C., aged 37.

Charles C. Olmsted, M.D. Ohio, 1860, died at his home in Kansas City, Mo., January 25, aged 65.

Davidson Macdonald, M.D. Toronto School of Medicine, 1873, died in Toronto January 3.

Christian A. Hermann, M.D. Illinois, 1894, died at his home in Chicago, January 22, aged 59.

Death Abroad.

N. Sklifossovski, M.D., one of the leading surgeons of Russia, and president of the International Medical Congress at Moscow in 1896, died December 12 at his country home, aged 68. The list of his contributions to the literature is a long one.

Book Notices.

Mental Defectives; Their History, Treatment and Training. By Martin W. Barr, M.D., Chief Physician Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Illustrated by 53 Full-page Plates. Cloth. Pp. 368. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

This book is based on knowledge and extensive experience. It is encumbered by no fads, and is biased by no pet theories; it is the product of a well-balanced mind and is a safe guide. Strictly speaking, it can scarcely be called a medical work, still no neurologist, alienist, or physician having to do with feeble-minded or defective children can afford to be without it. But the medical man does miss a chapter on pathology. He has learned to think of disease in terms of pathologic processes if not of pathologic anatomy. With the clinical picture he correlates a vision of abnormal tissue or deranged function. And this is well. To read a book, then, of more than three hundred pages on the mentally defective and find nothing of the causative brain conditions gives the physician an acute feeling of incompleteness. In his preface the author states that the work "addresses itself primarily to anxious parents and to earnest teachers." For the latter, meaning teachers of defectives, it is invaluable. So far as we are aware, there is no work in any language which can take its place. For the average parent the book is much too complete, too technical, too erudite. To sift from the mass the particular facts and advice applicable to his own child would require a layman of unusual education and intelligence. The different chapters are of most unequal value. Chapter 2 on history is very complete (53 pages) and would make a fitting introduction to a work three times the size of this one. The chapter on training and treatment is particularly good, but it might well be two or three times as long. There are well-considered chapters on craniectomy and asexualization, cretinism, microcephalus and hydrocephalus, and epilepsy. The author has seen fit to introduce a chapter on echolalia, one on adenoma sebaceum and one on Samuel Henderson, murderer—all reprints of published articles which properly have no place in this volume. They are simply padding, good padding, but padding none the less. Sixty-four pages are devoted to condensed statements of illustrative cases. They are very good and serve excellently well as sketches of types. There are about 135 of these cases and there is a half-tone reproduction of a very good photograph of each patient, but the arrangement of the pictures is abominable. The text is pages 249 to 313, the pictures are scattered through the book from page 36 to page 308. There are no cross references, so that a considerable search is necessary to find illustration going with description and vice versa. The defects are superficial, the excellencies are fundamental, and the work is sincerely commended to all interested in the subjects it covers.

Pneumonia and Pneumococcus Infections. By Robert B. Preble, A.B., M.D., Professor of Medicine, Northwestern University. Illustrated. Cloth. Pp. 211. Price, $1.00. Chicago: Cloyd J. Head & Co. 1905.

This monograph of 211 pages is timely. When pneumonia is destroying annually, in some parts of our country, more lives than tuberculosis, when new facts concerning its diagnosis and pathogenesis are being brought to light, and when confusing, conflicting, muddled and extravagant views are held as to treatment, it is well to have a résumé of the facts brought to our attention. This has been done by Preble. If one looks here for the latest views concerning the bacteriology of the pneumococcus, for the finer histologic details of the diseased lung or for the latest theoretic and experimental work on pneumonia along the line of Ehrlich's side-chain theory, he will be disappointed. And we take it the omission is made because the book is intended for the general practitioner and not for the expert, for the research man nor for the original investigator. Preble emphasizes the value of early blood examinations in suspected pneumococcus infections; the importance of paying attention to slight and atypical symptoms in the diagnosis of pneumonia; and above all to the inexcusability of an error in diagnosis made because of failure to examine the chest. The influence of the book as regards therapy will be good. We are a little disappointed that treatment does not receive more attention and that more details as to drugs, remedial measures, diet and nursing are not given. But the introductory remarks on the subject of treatment, regarding the uselessness or even harmfulness of giving the so-called specifics are well put and should do much to discourage the reckless though well-intended maltreatment by overdrugging. Statistics concerning therapy, unless they be carefully and scientifically compiled, are almost worthless. As Preble well says: "A judicious selection of cases will enable one to have a mortality at any desired point between 2 or 3 per cent. and 100 per cent." There is a healthful skepticism, not pessimism, about Preble's therapy that will do good in many quarters. While most of the facts are the old, familiar ones, some are emphasized and have attracted our attention because they are not always as clearly recognized as they should be. As illustrations we might mention the importance of making bacteriologic cultures from the blood; the possibility of recovery from pneumococcus meningitis; the aid to diagnosis from lumbar puncture in suspected meningitis complicating pneumonia; the distinctness with which bronchial breathing is heard by the direct method as compared to mediate, i. e., stethoscopic, auscultation. The points made regarding the value of the three symptoms, sudden onset with chill and high fever, herpes and leucocytosis as significant of pneumococcus infection (with or without pulmonary localization) are worth consideration and more extended observation. There is not, we think, enough emphasis laid on the probable conveyance of pneumonia from patient to patient by means of sputum, by coughing, etc., nor to the proper disposal of the sputum suggested under treatment. The alimentary symptoms, tympany, diarrhea, etc., deserve fuller mention. Post-pneumonic psychoses are not so rare that they should be passed unnoticed. The book is only in fairly attractive form. It could be improved in this respect. There are a few mediocre illustrations. There are not a few typographical errors —temperature for temptation, communis for commune, preturbatis for preturbatic, etc. From page 76 to the end of the book there are 33 lines to the page instead of 31 as found in the first 76 pages. While this, and other mechanical defects mentioned, do not seriously mar the book, they are blemishes that should not be allowed to pass without criticism.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., *Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore;* and John Ruhräh, M.D., *Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore.* Cloth. Pp. 689. $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This work discusses, first, the physiology and chemistry of digestion. In this relation the authors mention the quantity of food required for infants and adults under the various conditions by giving standard dietaries containing the important articles of food, with their relative food values expressed in heat units or calories. Mention is also made of the influence produced by different factors on digestion, such as the hours, order and frequency of meals, variety in diet, rest, and exercise before and after meals. The relative values of the different waters are also shown by their chemical composition presented in tabulated form. A small space is devoted to food adulteration. That part given to infant feeding includes the views and tables of the most important writers on the subject. The discussions on diet in diseases of the gastro-intestinal tract, circulatory system, genitourinary system, skin, etc., include the ideas of the leading authorities on these lines. The literature on the subject of diet has been thoroughly reviewed and so compiled and arranged in a systematic manner as to render it practical, simple and easily accessible to the physician. We believe the statement to be true that the instructions given to patients by the physician as to what should be included in, or restricted from his diet during treatment are, as a rule, not so definite and explicit as they should be. This book is of value in assisting the physician in outlining a proper diet list to meet the demands and needs of those cases which may require a special diet or a change in diet suitable to the different stages of the disease.

A DICTIONARY OF NEW MEDICAL TERMS, Including Upward of 38,000 Words and Many Useful Tables, Being a Supplement to "An Illustrated Dictionary of Medicine Biology and Allied Sciences." By George M. Gould, A.M., M.D., Editor of *American Medicine* Based on Recent Scientific Literature. Half Morocco. Pp. 571 Price, $5.00 net. Philadelphia: P. Blakiston's Son & Co. 1905

In the progress that is being made in medical science and in the sciences related to medicine new words must be coined to meet new conditions and new things. Gould tells us in the work before us that in a decade over 30,000 new terms have been devised, and this is believable, although he, of course, includes the terms covering all literature. The progress being made in experimental medicine, pathology, bacteriology, etc., makes new terms especially necessary, and those who desire to keep up find one of the stumbling blocks to be the new words that are in many instances meaningless. A critical examination of Gould's book shows that he has incorporated all new terms that relate to medicine, making it a valuable supplement not only to his "Illustrated Dictionary of Medicine," but to all other dictionaries. Not only have the new words been included, but old words which had become obsolete and which have now been revived are also incorporated in the book. The definitions in many instances are really descriptive in character and this adds to the value of the book. The lists of stains and tests are particularly worthy of commendation. This dictionary is commended to those who are anxious to be in touch with the progress which is being made and the literature pertaining to this progress.

THE PHYSIOLOGICAL FEEDING OF INFANTS. A Practical Hand Book of Infant Feeding, and Key to the "Physiological Nursery Chart." By Eric Pritchard, M.A., M.D. (Oxon.), M.R.C.P. (Lond.). Second Edition, Greatly Enlarged and Entirely Rewritten. Cloth Pp. 202. Price, $1.50 net. Chicago: W. T. Keener & Co. 1904

In this book, Pritchard emphasizes the impracticability of using one formula for all children. In the case of breast-fed infants he lays stress on the importance of regular meals for the mother as well as on the necessity of regular intervals between feedings for the child. Explicit directions are given for the preparation of artificial food and for modifying cow's milk, not only for infants but for sickly and delicate children The development and physiology of the infant is also given careful attention. The book is complete and practical.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By J. A. Milroy, M.A., M.D., Demonstrator of Physiology, Queen's College, Belfast, and T. H. Milroy, M.D., B.Sc., F.R.S.E., *Professor of Physiology, Queen's College, Belfast.* Cloth. Pp. 200. Price, $1.60 net. New York Longmans, Green & Co. 1904.

This is a practical, concise and intelligible book for the use of students. Methods of work and technic are alone considered. The proteids and proteid reactions are fully dealt with The chapters on the blood and on the urine are particularly good and should prove of value not only to students, but to general practitioners. Experiments are described fully, and there are numerous cross references which add to the value of the work.

Miscellany.

Annual Progress Number.—The last issue of the *Interstate Medical Journal* is the "Annual Progress Number," which reviews the medical literature of the past year. It contains several comprehensive and scholarly articles reviewing the progress made in all branches of medicine during 1904.

Charas Poisoning.—From Delhi, India, according to *Albany Medical Annals,* several cases are reported of poisoning by charas, a resin of cannabis indica. Eight Hindu prisoners in the jail became suddenly ill and confessed that they had managed to secure this drug, which they smoked in pipes. They vomited, complained of headache, nausea, giddiness and faintness of vision and of dryness in the mouth and throat. The conjunctiva was suffused and the pupils of all extremely contracted. The pulse was full and bounding and 120 per minute. One symptom was peculiar and noteworthy. While in a sitting posture the patient was constantly turning round and round from the left to right in a circular fashion. Ordinary remedies were resorted to and the patients were all right in the morning.

Encouragement and Sympathy for Patients.—Every practitioner of the highest position in surgery and medicine, said Lord Kelvin, addressing a body of physicians, has to administer spiritual consolation to his ptients. Do not run away with words and think I am encroaching on theological ground. When you keep up a patient's spirit you are administering spiritual consolation to him. Many a poor fellow, laid up with a broken leg in a splint, looks for the moment of the weary twenty-four hours when the physician gives him a kindly word, although only in passing. Let your natural feelings prompt you in your dealings with your patients and you can not go wrong, and you will be spiritual helps to your patients as well as physicians and surgeons. As men can not live on bread alone, patients can not get cured on drugs and splints alone.

Nomenclature of Synthetic Chemicals.—Pharmacists are frequently directed to dispense preparations about which they know absolutely nothing more than the fanciful name ending in al, en, ic, in or ol, says Golaz-Verey (in *Schweiz. Woch. f. Chem. u. Phar.*). The names usually consist of (1) some arbitrary abbreviation of the descriptive chemical title; (2) some real or imaginary reference to the possible therapeutic uses of the remedy; or (3) some fanciful and usually far-fetched discovery of the manufacturer. Pharmaceutic and medical societies should demand that manufacturers furnish information on (a) the commercial as well as the exact chemical constitution of the preparation; (b) reliable tests for identity; (c) melting and boiling points; (d) solubility; (e) special incompatibility; (f) dose and therapeutic action; (g) necessary precautions that are to be observed in keeping the preparation. If this really necessary information were forthcoming in all cases, new preparations might be dispensed and used with some prospect of a more rational advance in therapeutics.

Ocean Voyage for Invalids.—From the *British Medical Journal* we learn that a large sailing vessel will leave Great Britain about the end of January for a long voyage in the Atlantic in warm latitudes. It will carry about fifty tubercular patients and a number of inebriate and other invalids. The consumptives will live on deck in the open air night and day, constantly breathing absolutely pure air containing much ozone. During the voyage the vessel will call at such ports as Gibraltar, Canary Islands, Rio Janeiro, River Plate, Table Bay, St. Helena, Pernambuco, West Indies, etc. Time will be given to the passengers to see something of the countries and their peoples, and to learn something of their customs and manners. Everything will be done on board to make time pass pleasantly, music, games of all kinds, books, fishing and boat sailing when possible, and it is also proposed to teach a foreign language (French or Spanish). There will be an efficient staff of physicians and nurses. This example might be advantageously followed in this country. Many patients who shrink from sanatorium treatment would enjoy such a voyage and would be greatly benefited thereby. The countries visited and the novelty of life aboard ship would be of sufficient interest to keep the patient's mind diverted from his physical condition—a most difficult matter to accomplish in a sanatorium.

Imagination as a Cause of Death.—Two or three stories in British newspapers illustrate the powerful effect the imagination can exercise over the phenomena of life. The *Medical Press* reports that in one case a girl, suffering from despondency of spirits, is said to have swallowed some harmless fluid in mistake for carbolic acid. She immediately declared that she had poisoned herself, and soon died, though we are left without any information as to the nature of the equally peculiar case, a young woman asked a druggist for laudanum, but the clerk, noticing her excited condition, supplied port wine. Shortly afterward she was discovered apparently suffering from opium poisoning, and the usual anti-opium treatment was successful. Though we have no authority beyond newspaper currency for either of these stories, says the paper cited above, there is nothing in them inherently impossible. Apart from the extraordinary mimicry of which hysterical subjects are capable, there are several well-authenticated instances in which death has been the result of quite imaginary causes, or rather of the fright resulting therefrom. Perhaps the best known of these is the case of the janitor of a Scottish university, who, being threatened with being beheaded by a party of students, was made to kneel before an improvised block, and was struck on the neck with a wet towel. To the astonishment of the students, he did not move, and was actually found to be dead.

Effects of Borax and Boracic Acid on Health.—Dr. H. W. Wiley, chief of the bureau of chemistry of the Department of Agriculture, in his report (recently issued) of the experiments undertaken by the bureau to ascertain the effects of borax and boracic acid on digestion and health, gives some interesting information regarding the experiments. The persons volunteering were required to sign a pledge agreeing to follow implicitly the rules and regulations governing the "hygienic table" and to take no other food or drink—water excepted—than that provided. Regular meals and regular hours and habits of life were prescribed and the individuals were examined every ten days by a physician of the Public Health and Marine-Hospital Service. Systematic examinations of blood, urine and feces were made to determine the amount of boric acid excreted and the method of excretion. The mental attitude of the individuals was also carefully noted. All the young men followed their usual vocations during the experiments. Dr. Wiley states that while some of "the members of the table were made temporarily ill by the quantities of the preservative administered, it is nevertheless an interesting fact to note that at the end of the year, after the final 'after-period' had been passed, they appeared to be, and declared themselves to be, in better physical condition than when they entered on the experimental work seven months before." This probably may be explained by the self-restraint, temperance and regularity in meals and in hours for sleep and work which were insisted on during the course of the experiments. It is evident that the tendency toward a good physical state and good health produced by the regular habits of life counteracted the unfavorable tendency of any preservative ingested, so that, though the preservative might have produced injurious effects, judged by the condition of the subject, the results of the experiment might be pronounced negative.

State Boards of Registration.

COMING EXAMINATIONS.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Colorado Report for 1904.—Dr. S. D. Van Meter, secretary of the Colorado State Board of Medical Examiners, reports the examinations held in Colorado during 1904. At each examination 70 questions were asked in 7 subjects, and percentage required to pass was 70. During the quarter ending March 31, 5 persons were examined, of whom 2 passed and 3 failed. Forty-six persons were licensed on diploma, 4 duplicate certificates were issued and 2 persons were refused license on diploma. During the quarter ending June 30, 4 persons were examined, of whom 1 passed and 3 failed. One hundred and eighteen persons were licensed on diploma, 2 were refused on diploma, 1 was refused on the "ten-year clause," and one examination was deferred by request. During the quarter ending September 30, 2 persons were examined, both of whom failed. One hundred and sixteen licenses were granted on diploma, 3 duplicate certificates were issued, 5 were refused on diploma, one examination was deferred by request and one deferred, "ten-year clause." During the quarter ending December 31, 86 licenses were granted on diploma, 2 duplicates were issued, 3 licenses were refused on diploma, 2 persons were examined and failed, 2 applications on diploma were deferred and 2 examinations were deferred. All applicants who are refused a license on diploma have the privilege of taking the examination.

Indian Territory Reports.—Dr. B. W. Caldwell, secretary of the Board of Medical Examiners of the Central District, reports the written examinations held at South McAlester, July and October, 1904. At both examinations the number of subjects examined in was 13; questions asked, 130; percentage required to pass, 70, and not below 60 in any subject. At the examination July 5-7 the total number examined was 18, of whom 6 passed and 12 failed. Seventeen were undergraduates. At the examination held October 4-6, 1904, 34 were examined, of whom 16 passed and 18 failed.

Dr. E. E. Owens, secretary of the Medical Examining Board, Southern District, reports the written examinations held at Ardmore July 4-5, at Chickasha October 3-4, and at Paulo Valley November 7-8, 1904. At the examination held at Ardmore the number examined was 32, all undergraduates, of whom 9 passed and 23 failed. At the examination at Chickasha the number examined was 17, all undergraduates, of whom 6 passed and 11 failed. At the examination held at Paulo Valley the number examined was 33, all undergraduates, of whom 6 passed and 27 failed.

Kentucky October Report.—Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination, held at Louisville, Oct. 3, 1904. The number of subjects examined in was 10; total questions asked, 100; percentage required to pass, 70, and not less than 60 in any one subject. The total number examined was 10, of whom 4 passed, 4 failed, and 2 withdrew from the examination. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Western Reserve Med. Coll	(1901)	92
Cleveland Homeo. Med. Coll	(1904)	85
Baltimore Med. Coll	(1904)	75
Miami Med. Coll	(1904)	80
FAILED.		
Baltimore Med. Coll	(1903)	60
Univ. of Maryland	(1904)	65
Louisville Hosp. Med. Coll	(1900)	49
Knoxville Med. Coll	(1901)	48
WITHDREW.		
Hosp. Coll. of Med	(1904)	
Louisville Med. Coll	(1903)	

Maine November Report.—Dr. W. J. Maybury, secretary of the State of Maine Board of Registration of Medicine, reports the oral and written examination held at Augusta, Nov. 15, 1904. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number examined was 17, all of whom passed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Coll. of P. and S., Boston	(1904)	85.8, 86.6
Med. School of Maine	(1904)	89.9, 87.5, 85.5
Harvard Med. School	(1904), (1894), (1892)	93.7, 93.2, 94.3
Univ. of Michigan	(1903)	95.9
Baltimore Med. Coll	(1904)	87.3
McGill Univ.	(1904)	84
Tufts Coll. Med. School	(1902)	92
Eclectic Med. Coll., Milwaukee	(1895)	84.5
Hahnemann Med. Coll., Chicago	(1901)	87
Medico-Chirurgical Coll., Philadelphia	(1904)	88.5
Boston Univ. Med. School	(1904)	92
Coll. of P. and S., Baltimore	(1904)	87.3

Missouri Report for 1904.—Dr. W. F. Morrow, secretary of the Missouri State Board of Health, reports the written examinations held in Missouri during 1904. The number of questions asked at each examination was 12, and percentage required to pass, 75. At the examination held in Kansas City in April 25 persons were examined, of whom 19 passed and 6 failed. The following colleges were represented:

	Per Cent.
PASSED.	
Medico-Chirurgical Coll., Kansas City	75, 76, 81
University of Michigan	80
College of P. and S., Chicago	78, 75
Eclectic Medical University	75
Barnes Medical College	77
University Med. Coll., Kansas City	75, 78, 75, 79, 80
Woman's Med. Coll., Kansas City	85, 78
University of Louisville	78
Creighton Medical College	84, 77
Tennessee Medical College	80
FAILED.	
University of Louisville	68
Eclectic Medical University	61
Barnes Medical College	65
Central Medical College, St. Joe	70
Medico-Chirurgical College, Kansas City	69, 69

At the examination held in St. Louis, April 19-21, 69 persons were examined, of whom 52 passed and 17 failed. The following colleges were represented:

PASSED.	Per Cent.
Marion Sims-Beamont Med. Coll	83, 82, 79, 77, 77, 76
St. Louis University	80, 79, 76, 84, 81
St. Louis Homeo. Med. Coll	78
Barnes Medical College	85, 85, 80, 77, 78, 75, 75
College of P. and S., St. Louis	81, 75, 75, 76
University of Michigan	80
Washington University	80, 78, 81, 82, 79, 75
Meharry Medical College	78, 85
Rush Medical College	77
Hospital College of Medicine	76
Harvard Medical Department	77
Medico-Chirurgical College, Philadelphia	79
University of Kentucky	76, 75
Kentucky School of Medicine	75, 76, 77
American Medical College	78, 77, 79, 75, 76, 80, 78
College of P. and S., Chicago	78
Homeopathic College of Medicine	77, 79
University of the City of New York	79
FAILED.	
Barnes Medical College	68, 71, 70, 67, 70, 69
Marion Sims-Beaumont Medical College	69
American Eclectic Medical College	60, 70
Meharry Medical College	68
Washington University	71, 70
University of Kentucky	69
Louisville Medical College	55
College of P. and S., St. Louis	67, 70
University of the South	70

The general average attained by all representatives of the Marion Sims-Beaumont Medical College who passed at this examination was 79; of all representatives of Barnes Medical College who passed, 79.4; of Washington University, 79.1.

At the examination held in Kansas City, June 20-22, 25 persons were examined, of whom 19 passed and 5 failed. The following colleges were represented:

PASSED.	Per Cent.
University of Tennessee	78
Rush Medical College	80, 84, 80
Hering Medical College, Chicago	75
Central Medical College, St. Joe	81
Western Reserve University	79
Barnes Medical College	77
Jefferson Medical College	86
Keokuk Medical College	78
Hahnemann Medical College, Philadelphia	81
Chicago Homeopathic Medical College	76, 75
University of Nashville	78
Washington University	75, 76
Louisville Medical College	81
Creighton Medical College	76
College of P. and S., Keokuk	75
FAILED.	
Miami Medical College, Cincinnati	60
Kansas City Medical College	70
Eclectic Medical University, Kansas City	69
Keokuk Medical College	60
College of P. and S., Keokuk	68

At the examination held in St. Louis, September 19-21, 41 persons were examined, of whom 31 passed and 10 failed. The following colleges were represented:

PASSED.	Per Cent.
Northwestern University	77, 76
University of Missouri	79, 81
Johns Hopkins University	80
Medical College of Ohio	76
Rush Medical College	80, 77
Harvard University	83
Illinois Medical College	78, 80
University of Michigan	79
Missouri Homeopathic Medical College	77
Milwaukee Medical College	75
University of Kentucky	76, 79
Keokuk Medical College	76
University of Maryland	77
American Medical College	78
University of Iowa	75
St. Louis University	76, 76, 75
University Medical College, Kansas City	75
Barnes Medical College	78, 75, 80
College of P. and S., Chicago	75
Harvey Medical College, Chicago	77
Marion Sims-Beaumont Medical College	78, 79
FAILED.	
Kentucky School of Medicine	65, 71
College of P. and S., St. Louis	69, 71

Grant University	68
St. Louis University	69
Eclectic Medical College, Kansas City	70
College of P. and S., Keokuk	50
Keokuk Medical College	65
American Medical College	69

At the examination held in St. Louis, December 19-21, 82 persons were examined, of whom 42 passed and 40 failed. The following colleges were represented:

PASSED.	Per Cent.
Barnes Medical College, the grade of 75 was reached by two, 76 by three, 77 by three and 80 by one.	
Missouri Homeopathic Medical College	79
Kentucky School of Medicine	77, 77
Starling Medical College	78
Rush Medical College	77
Louisville Medical College	76
St. Louis University, the grade of 75 was reached by three, 76 by two, 77 by three, 78 by one and 81 by one.	
College of P. and S., Keokuk	76
College of P. and S., St. Louis	77, 75, 75
Washington University	80, 76
Northwestern University	79
Eclectic Medical Institute	78
College of P. and S., Chicago	75
Woman's Medical College, Pennsylvania	85
American Medical College	76, 75
Marion Sims-Beaumont Medical College	80, 76, 75, 80

FAILED.	
Barnes Medical College, the grade of 52 was reached by one, 54 by one, 55 by two, 60 by three, 63 by one, 65 by one, 66 by four, 67 by two, 68 by five, 69 by four, 70 by one.	
University of Louisville	60, 54
Marion Sims-Beaumont Medical College	62, 68
Medical College of Alabama	68
College of P. and S., St. Louis	69, 69, 66, 70, 63, 40
Ohio Medical University	63
Missouri Homeopathic Medical College	60
American Medical College	64, 65

The general average attained at this examination by all representatives of Barnes Medical College who passed was 76.5; of all representatives of St. Louis University who passed, 77.3.

During the year 300 persons were registered on diploma.

New York Report for 1904.—Dr. Charles F. Wheelock, secretary of the New York State Board of Medical Examiners, reports the examinations held at Albany, Buffalo, New York and Syracuse during 1904. The total number of persons examined during the year was 793, of whom 667 passed and 126 failed. The following colleges were represented:

PASSED.

Albany Medical College had 40 representatives; Bellevue Medical College and Hospital, 49; College of P. & S., New York City, 160; Cornell University, 58; Eclectic Med. Coll. of the City of New York, 9; Long Island College Hospital, 45; New York Homeo. Medical College and Hospital, 27; New York Medical College and Hospital for Women, 9; New York University Medical College (1897), 1, 30; Syracuse Medical College, 30; University of Buffalo, 43; Yale, 9; Columbia University, 2; Georgetown University, 3; Howard University, 1; Harvard University, 6; Chicago Homeopathic Medical College, 1; College of P. & S., Chicago, 1; Northwestern University, 3; Rush Medical College, 3; Bowdoin Medical College, 1; Baltimore Medical College, 12; Baltimore University School of Medicine, 4; College of P. & S., Baltimore, 4; Johns Hopkins University, 14; University of Maryland, 1; Boston University School of Medicine, 4; Tufts Medical College, 1; Detroit College of Medicine, 2; University of Michigan, 5; University of Minnesota, 1; Omaha University, 1; Dartmouth Medical College, 1; College of P. & S., Cleveland, 2; Eclectic Medical Institute, Cincinnati, 1; Hahnemann Medical College and Hospital, Philadelphia, 6; Jefferson Medical College, 11; Medico-Chirurgical College, Philadelphia, 1; University of Pennsylvania,, 15; Western Pennsylvania Medical College, 2; Woman's Medical College, Philadelphia, 10; South Carolina Medical College, 1; University of Nashville, 2; University of Vermont, 3; University College of Medicine, Richmond, Va., 1; University of Virginia, 4; University of Vienna, 2; Laval University, Canada, 1; McGill University, 5; Ontario Medical College for Women, 2; Queens University, Kingston, Canada, 2; Trinity University, Canada, 1; University of Toronto, 5; University of Berlin, 2; University of Bonn, 1; University of Erlangen, 2; University of Munich, 2; University of Wurzburg, 1; University of Naples, 15; University of Palermo, 3; University of Rome, 2; University of Siena, 1; University of Turin, 1; University of Moscow, 2; University of St. Vladimir, 1; University of Edinburgh, 1; University of Glasgow, 1; University of Zurich, 1; American School of Medicine of the Syrian Protestant College, Beirut, Turkey, 1. License to practice medicine in the German Empire, 1.

FAILED.

Albany Medical College, 1 representative; College of P. & S., New York City, 5; Cornell University, 1; Long Island College Hospital, 1; University and Bellevue Hospital Medical College, 2; University of Buffalo, 4; Howard University, 1; College of P. & S., Chicago, 1; Illinois Medical College, 1; Keokuk Medical College, 1; Kentucky School of Medicine, 1; University of Kentucky, 1; University of Louisville, 1; Baltimore Medical College, 1; Baltimore University School of Medicine, 4; *Tufts Medical College*, 1; University of Michigan 1; Marion Sims Medical College, 1; Cleveland University of Medicine and Surgery, 1; Jefferson Medical College, 2; University of Pennsylvania, 1; University of Vermont, 3; University of Budapest, 1; University of Koenigsberg, 1; University of Athens, 1; University of Naples, 19; University of Bucharest, 2; University of Dorpat, Russia, 1; Karolinsko Medico-Chirurgical Institute, Stockholm, 1.

Vermont April and October Reports.—Dr. W. Scott, secretary of the Vermont State Board of Medical Registration, reports the written examinations held at Burlington in April and October, 1904. At each examination the number of subjects examined in was 8; total questions asked, 80; percentage required to pass, 70. At the April examination 4 persons were examined, all of whom passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of Vermont (1901) 78,	(1902)	76
Amer. Med. Miss. Coll., Chicago	(1901)	81
Ohio Medical College	(1897)	77

At the October examination 8 persons were examined, all of whom passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
McGill University	(1902)	87
University of Vermont	(1904)	76, 70
Baltimore Med. Coll.	(1904)	86
Jefferson Med. Coll. (1903) 80,	(1904)	74
Dartmouth Med. Coll.	(1901)	84
Cornell University	(1904)	85

Washington Will Not Reciprocate.—The Washington State Board of Medical Examiners is said to have declined the request of the Illinois State Board of Health to establish reciprocity. The board is quoted as saying that it desires to treat all applicants alike, and that it will require all newcomers from whatever state to take the examination.

Association News.

Yellowstone Park and Portland Special.

As announced last week, it is proposed to run a special train to Portland, leaving Chicago June 30, stopping six days at the Yellowstone Park, and arriving at Portland on Monday morning, July 10. It is necessary to arrange with the park management some months beforehand for the dates required and for this reason it is essential to know at once *whether a sufficient number will probably go to warrant* running such a train. Will those who think they would like to go on such a train notify THE JOURNAL at once? Several letters have been received in response to the notice last week, and, as questions asked in these may be asked by others, we answer them here. One member asks if he can stop off for a month at Denver on his return; another wants to stop over at Glenwood Springs, and another at Dickenson, N. D. All these privileges can be obtained. The time limit to the tickets is fixed at 90 days from the time of starting until returning, and the railroads will be liberal in giving stop-overs on the return trip, but probably not on the outward trip. One member asks if something can not be done to avoid the trouble usually met with in getting tickets endorsed for the return trip; in other words, as the correspondent puts it, "can not there be less red tape?" Replying to this: The western roads are not given to so much "red tape" as is the case with those of the East, for it is not necessary. Possibly one or two roads will issue tickets that will have to be deposited, but the majority of the roads will not require this.

The extra expense necessary for the week at the park will be less than $50. This will include coaches, hotel expenses —in fact, everything. The number will be limited to 250.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Jan. 28, 1905:

Ford, Clyde S., asst.-surgeon, ordered to proceed from Fort Barrancas to Ormond, Florida, on public business.

Brechemin, Louis, Jr., asst.-surgeon, left Fort Baker, California, on thirty days' leave of absence.

Wythe, Stephen, contract surgeon, assigned to duty January 11 at Fort Baker, California.

Merrick, John N., contract surgeon, returned to duty at Fort Missoula, Montana, January 16 from leave of absence.

Brooks, John D., contract surgeon, returned to duty at Fort Meade, South Dakota, January 18 from leave of absence.

Whinnery, Jean C., dental surgeon, arrived at Vancouver Barracks, Washington, January 17 from leave of absence.

Ware, William H., dental surgeon, left Fort Logan, Colorado, January 21 for temporary duty at Fort Wingate, New Mexico.

Wing, Franklin F., dental surgeon, arrived at Fort Meade, South Dakota, January 20 for temporary duty.

Adair, George W., contract surgeon, granted leave of absence for two months about February 1.

Lemmon, Robert, contract surgeon, ordered from Fort Terry, New York, to Fort Wadsworth, New York, for temporary duty.

Holmes, Thomas G., contract surgeon, arrived January 24 at Fort Sheridan, Illinois, for temporary duty.

Marvin, Marion H., contract surgeon, arrived at San Francisco January 15 on one month's leave of absence from the Philippine Division.

Casaday, George H., dental surgeon, arrived at San Francisco January 15 on three months' leave of absence from the Philippine Division.

Sparrenberger, Frederick H., contract surgeon, granted leave of absence for ten days.

Nash, Francis S., contract surgeon, availed himself January 25 of leave of absence for four months.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending January 28, 1905:

Henneberger, L. G., medical inspector, detached from the *Olympia* and ordered home to wait orders.

Graove, W. B., surgeon, ordered to the Naval Hospital, Chelsea, Mass., January 30.

Wilson, G. B., surgeon, detached from the Naval Hospital, Chelsea, Mass., and ordered to the *Colorado.*

Steele, John M., surgeon, detached from the *Colorado* and ordered to the *Olympia.*

Odell, H. E., P. A. surgeon, ordered to the Naval Hospital, New York.

Taylor, J. L., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant (J. G.) from Dec. 17, 1904.

Crandall, R. P., surgeon, detached from the *New Orleans* and ordered home to wait orders.

Geiger, A. J., asst.-surgeon, detached from the *Prairie* and ordered to the Naval Station, Port Royal, S. C., for temporary duty.

Curl, H. C., P. A. surgeon, detached from duty with the Isthmian Canal Commission on the Isthmus of Panama and ordered to the *Boston.*

Guthrie, J. A., P. A. surgeon, ordered to the *Dixie,* sailing from New York on or about February 4.

Leys, J. F., P. A. surgeon, detached from the Naval Station, Guam, L. I., and ordered home to wait orders via *Solace.*

Stepp, J., asst.-surgeon, ordered to the *Constellation* and to additional duty at the Naval Training Station, Newport, R. I.

Ely, C. F., asst.-surgeon, detached from the Naval Academy and ordered to duty with the Marine Detachment on the Isthmus of Panama, sailing from New York January 31.

Baker, M. W., asst.-surgeon, detached from the *Brooklyn* and ordered to the Naval Hospital, San Juan, P. R.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 25, 1905:

Earle, B. H., asst.-surgeon, granted leave of absence for three days from Jan. 21, 1905. Granted extension of leave of absence for four days from January 25.

Foster, S. B., A. A. surgeon, granted leave of absence for twelve days from January 24.

Goodman, F. S., pharmacist, granted leave of absence for seven days from January 24.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 27, 1905:

SMALLPOX—UNITED STATES.

Colorado: Dec. 1-31, Garfield Co., 11 cases; Lake Co., 5 cases; Larimer Co., 18 cases; Las Animas, 1 case; Weld Co., 1 case.

District of Columbia: Washington, Jan. 8-21, 4 cases.

Florida: Jacksonville, Jan. 8-14, 1 case.

Illinois: Chicago, Jan. 15-21, 18 cases, 1 death.

Louisiana: New Orleans, Jan. 15-21, 13 cases, 4 imported.

Michigan: Detroit, Jan. 15-21, 2 cases.

Missouri: St. Louis, Jan. 15-21, 24 cases, 1 death.

Tennessee: Jan. 15-21, Memphis, 10 cases, 3 imported; Nashville, 3 cases.

Wisconsin: Milwaukee: Jan. 15-21, 6 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Dec. 25-31, 5 cases.

Brazil: Pernambuco, Dec. 2-15, 85 deaths; Rio de Janeiro, Dec. 26-Jan. 1, 73 cases, 23 deaths.

France: Paris, Jan. 1-7, 10 cases, 1 death.

Great Britain: Dundee, Dec. 25-31, 3 cases; Jan. 1-7, Leeds, 4 cases; London, 1 case; Manchester, 1 case; Newcastle-on-Tyne, 4 cases; Nottingham, 1 case.

India: Karachi, Dec. 17-23, 2 cases.

Italy: Catania, Dec. 30-Jan. 5, 4 cases.

Peru: Callao, Dec. 17, 1 case from S. S. *Leo Valparaiso* via immediate ports.

Russia: Moscow, Dec. 8-14, 2 cases, 1 death; Dec. 25-31, Odessa, 1 case, 1 death; St. Petersburg, 3 cases, 3 deaths.

Straits Settlements: Singapore, Dec. 4-10, 2 deaths.

Turkey: Constantinople, Dec. 26-Jan. 1, 24 deaths; Smyrna, Nov. 20-27, 1 death.

Venezuela: Vicinity of Macuto, Jan. 1-7, 15 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, ec. 26-Jan. 1, 1 case.

Cuba: Habana, Jan. 10, 1 death from S. S. *Dora* from Laguayra and Colon.

Panama: Panama, Jan. 1-15, 5 cases, 1 death.

Venezuela: Caracas, Dec. 17-Jan. 7, 1 death; vicinity of Laguayra, Jan. 1-7, 6 deaths.

CHOLERA.

Russian Empire: Astrakan government, Nov. 23-29, 6 cases; Nov. 23-Dec. 7, Baku government, 66 cases; Erivan government, 502 cases, 238 deaths; Samara government, 32 cases; Saratov government, Nov. 23-29, 40 cases, 19 deaths; Telisavetpol government, Nov. 23-Dec. 7, 68 cases; Transcaspian territory, Serachs province, Nov. 23-Dec. 7, 47 cases, 27 deaths; Uralsk, Dec. 28, epidemic.

Turkey: General, Nov. 28-Dec. 12, 396 cases, 287 deaths.

PLAGUE.

Arabia: Dec. 25-31, Crater (hospital), 41 cases, 33 deaths; Maalla, 2 cases, 2 deaths; Hadjuff (hospital), 2 cases, 2 deaths; Alia Islands, 5 cases, 2 deaths.

Argentina: Salta State, Dec. 14, 1 case.

Brazil: Rio de Janeiro, Dec. 26-Jan. 1, 20 cases, 11 deaths

Cape Colony: Port Elizabeth, Dec. 4 10, 2 cases.

Chile: Arica, Dec. 1, present.

Formosa: Dec. 5-11, 44 cases, 35 deaths.

India: Karachi, Dec. 19-25, 54 cases, 51 deaths.

Peru: Eten, Nov. 1-Dec. 11, 24 cases; Lambayeque, Nov.-Dec 11, 13 cases; Lima, Nov. 16 Dec. 11, 14 cases; Pacasmayo, Dec. 11, present.

Society Proceedings.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held Jan. 3, 1905.

Dr. J. Arthur Booth, President pro tem., in the Chair.

Exophthalmic Goiter in a Child.

Dr. J. Arthur Booth reported the case of a girl, 13 years old, whose family history was negative. The child had suffered from measles, whooping cough and scarlet fever in infancy, but there was no history of fright, nor could any other etiologic factor be discovered. The exophthalmos was first noticed when the child was 11 years old. Six months later the enlargement of the thyroid became noticeable. The exophthalmos and thyroid enlargement were very marked, as well as the tachycardia, the pulse ranging between 120 and 140 per minute. There was also tremor, general nervousness, sweating, insomnia and occasional headaches. The interesting feature of the case was the early age at which the disease manifested itself.

Adenoma of the Pineal Gland.

Dr. Adolf Meyer presented a man who, when diving, struck the top of his head. Following this he complained of headache. He became blind in 1898, with chiasma symptoms. In 1899 he had transitory attacks of numbness on the left side of the face, except in the area of the middle branch. From that time on there was difficulty in moving the lower jaw toward the left. There was no atrophy of the masseter. In August, 1900, cerebrospinal fluid began to drip from the right nostril, with considerable relief of the general symptoms. On the few occasions when the flow stopped the patient would become sleepy and stuporous for two or three days. During May and October, 1902, the patient, who was then 22 years old, had several general convulsions. In January, 1904, death occurred in a status epilepticus. The only permanent symptoms had been weakness of the left side of the jaw, a small area of loss of pain sensation of the left lower corner of the mouth, and subjective numbness in the left side of the tongue. The gait remained normal; the knee jerks were both increased; there was *no* clonus. At the autopsy an adenoma of the pineal gland was found. It had pressed itself through the roof of the midbrain behind the posterior commissure, protruding into the third and fourth ventricle and displacing the posterior corpora quadrigemina; the adenoma had practically no sand and but slight pigmentation. The right lateral ventricle had a funnel-shaped depression in its anterior end, with a perforation through the cortex.

A Unique Case of Fracture Dislocation of the Spine.

Dr. J. Ramsay Hunt reported the case of a man, 45 years old, who gave a history of syphilis followed by suppurating bubo and numerous attacks of gonorrhea. In 1895 he fell three stories through an air-shaft. He was unconscious for a few minutes. Following the accident he complained of severe pains in the back. Both legs were partially paralyzed. After the accident an angular deformity of the spine was noted, which still exists. It is located about the level of the twelfth dorsal vertebra, and it was safe to assume that the spine had suffered a fracture—dislocation at that point—and that the spinal cord had been injured at the same time. After remaining in bed for two months the legs began to improve, and six or seven months later he was able to resume his occupation as a truck driver. One year after the injury he was suffering no pain or inconvenience, although his legs were not quite as strong as they were before the accident. He could not run as fast as formerly, owing to a slight stiffness in the knees. There was no sensory nor vesical symptoms during this period. For four years or more the patient remained in this condition. About three years ago he began to complain of sensations of numbness and cold in the feet and legs, accompanied by stiffness and weakness. On stooping he felt a numbness in the lower portion of the back, extending down the posterior aspects of the thighs and legs. During the past two years these symptoms progressed slowly and steadily, without any sudden exacerbation, and without acute pain. The left leg was weaker than the right, and it was important to note that this was true of the initial paralysis and the long period of disability during convalescence. The patient now has a well-marked kyphosis, the tip of which corresponds to the twelfth dorsal vertebra. There is a posterior bilateral band of hyperesthesia at the same level. The spinal column is fairly mobile and is not tender to pressure. There is spastic paraplegia of the lower extremities, with the spasticity and clonus more marked on the left side. Babinsky phenomenon on both sides. The skin reflexes are present and there are distinct objective sensory disturbances in the lower extremities. The man is able to stand fairly well with his eyes closed. He has considerable difficulty in urination, with occasional incontinence. His sexual power apparently was unaffected. Coarse myokymic twitchings are present in the back below the level of the lesion: also in the buttocks, thighs and legs, especially their posterior aspect, after exertion and exposure to the cold. Occasionally during the past year he has had sharp shooting pains in the course of the sciatic nerves, causing reflex movements in the legs. These are more pronounced on the left side.

Dr. Hunt's second patient was an elevator operator, 22 years old, who about two months ago fell six stories with his elevator. He was unconscious fifteen minutes after the fall. On examination it was found that he had suffered a fracture-dislocation of the spine, the deformity extending from the eleventh dorsal to the second lumbar vertebra. Six weeks later there was an oval area of anesthesia over the anterior and lateral surfaces of the right thigh. The right knee jerk was absent. The left leg was weak and spastic, with clonus. The Babinsky reflex was not elicitable on either side. A girdle sensation was felt in the lower abdominal region, especially on the right side. There was difficulty on urination.

DISCUSSION.

Dr. **Joseph Fraenkel** thought that pressure on the cord due to an osseous lesion would give rise to more severe symptoms than were present in the first case. He suggested the possibility of a post-traumatic hematomyelia.

Diffuse Cauliflower-Like Puckering of the Cortex in Arteriosclerotic Epilepsy.

Dr. **Adolf Meyer** showed a brain which showed a form of vascular affection, principally of the cortical terminals, in a syphilitic, 55 years old. There was mental deterioration, with epilepsy, for twelve years, and slowly progressing left hemiplegia during the last year of life. The small vessels of the pia in the affected regions were diffusely occluded. The lesions affected principally the occipital lobes. In the temporal and parieto-frontal regions the convolutions bordering on the sylvian fossa were intact.

DISCUSSION.

Dr. **T. P. Prout** found that one case he had observed belonged to the realm of the infantile cerebral palsies, on which epilepsy was subsequently ingrafted.

Dr. **Fraenkel** said that he had seen quite a number of cases in which epileptiform seizures developed late in life, accompanied by some mental deterioration. The diagnosis was of importance, because in a younger person such a condition would be regarded as a general paresis. These seizures could usually be differentiated from those of ordinary epilepsy by the slight focal symptoms.

Officers Elected.

The annual election resulted as follows: President, Dr. Joseph Fraenkel; vice-presidents, Drs. J. Arthur Booth and Smith Ely Jelliffe; recording secretary, Dr. J. Ramsay Hunt; treasurer, Dr. G. M. Hammond; corresponding secretary, Dr. F. K. Hallock.

AMERICAN PUBLIC HEALTH ASSOCIATION.

(Continued from page 316.)

Meeting of the Laboratory Section, held at the General Wood Laboratory, Havana, Cuba, Jan. 9, 1905.

The Chairman, Dr. V. A. Moore, Ithaca, N. Y., in the Chair.

The session was devoted largely to water and sewage. Mr. George W. Fuller of New York, chairman of the Committee on Standard Methods of Water Analysis, submitted an exhaustive report on the changes and improvements in the methods that are being used in bacteriologic tests of water. The report was ordered to be distributed to bacteriologists both in this country and in Europe.

Reports of committees on a variety of technical subjects and several papers on bacteriologic topics were read.

The Persistence of Agglutinability in Typhoid Bacilli in Water.

Prof. **Edwin O. Jordan**, Chicago, drew the following conclusions: (1) That the typhoid bacillus may be isolated without special difficulty after association with bacillus coli in tap water and sewage for from at least twelve to twenty days. (2) That some strains of bacillus typhosus retain their property of agglutinability absolutely intact under these conditions.

A Cause of the Formation of Gas in Cans of Condensed Milk.

Mr. **Charles W. Dodge**, Rochester, N. Y., stated that bacteriologic investigations of the condensed milk in cans, which were found to bulge shortly after their preparation, failed to find any micro-organisms which, either singly or in combination, would cause the fermentation of either dextrose or lactose under a variety of conditions usually favorable to such fermentations. Neither would the milk itself from such cans cause fermentation in fresh milk. It was found, however, that when dilute solutions of butyric or lactic acid, varying from 1:200 to 1:500 in distilled water, were allowed to act upon the metal of which the cans were made, a slow evolution of gas took place, its rapidity being inversely as the dilution of the acid. It is probable that in the instance cited, the gas was formed not by the bacteria directly, but by the electrolytic action between the metal of which the cans were composed and the acids generated by the growth of bacteria in the milk before the latter was condensed.

An Unusual Channel of Infection with the Shiga Bacillus.

Mr. **Dodge** stated that a laboratory worker accidentally broke a test tube containing a culture of the Shiga bacillus, and some of the fluid was carried to his eye and was probably washed down into the pharynx. Twenty-four hours later typical clinical symptoms of acute dysentery appeared, and lasted for several days. This occurrence of the accident and the infection may be merely a coincidence, but, if not, the occurrence throws light on the rapidity of infection in dysentery in man.

An Improvement in the Technic of the Indol Test.

Dr. **Joseph McFarland** and Dr. **J. Hamilton Small**, Philadelphia, devised the following improved technic for determining the presence of small quantities of indol in bouillon cultures: The culture to be tested receives an addition of one drop of chemically pure sulphuric acid for each cubic centimeter of fluid, this being well shaken. In case the microorganisms produce both indol and nitrites, the red color now makes its appearance. When, however, the organisms produce no nitrites, the usual dilute solution of potassium nitrite is allowed to trickle slowly down the side of the tube and form a layer on the surface of the fluid it already contains. The red color of the nitroso-indol now makes its appearance at the line of contact of the two fluids. Tests on artificially prepared solutions of indol of upwards of 1:750,000 gave positive results. The authors stated that this improved method is applicable for showing the presence of indol in melted gelatin cultures. After the gelatin has hardened, the color ring is fixed for a period of from twelve to twenty-four hours, when the color becomes diffuse.

Mr. Freeland Howe, Jr., detailed some results in the use of different kinds of nutrient media with different periods of incubation, and gave the results of observations on the water of the Susquehanna river at Harrisburg, Pa.

Dr. F. C. Harrison, Guelph, Ont., gave the results of an examination of the water supply of Frederickton, N. B. He discussed briefly the sewerage and water supply systems of that city.

Mr. Earl B. Phelps, Boston, contributed some notes on the determination of the organic nitrogen in sewage by the Kjeldahl process.

Election of Officers of the Laboratory Section.

Chairman, Dr. Wm. H. Park, New York; vice-chairman, Mr. H. W. Clark, Boston; secretary, Dr. John S. Fulton, Baltimore; recorder. Dr. H. D. Pease, Albany.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.,
CHICAGO.

(Concluded from page 320.)

TAJ MAHAL.

The Royal Tomb, Taj Mahal, at Agra, is the most costly and the most beautiful mausoleum in the world. It was built by Emperor Shahjehan Jeman for his wife, Bagum. It was commenced in 1629 and completed in 1648. It is the most significant landmark of the power, glory and wealth of Turkish rule in India, and Agra to-day is a very important stronghold of Mohammedanism in India, as one-half of its population of 150,000 are Mussulmen. How so much money could be spent in memory of even a beloved empress surpasses all understanding. The entrance to the building which contains the tomb is a specimen of exquisite architectural art. From the entrance a pathway, paved with the purest white marble, leads to the main building, lined by columns of the same material and on each side a row of arbor vitæ, the tree so constantly found in Mohammedan cemeteries.

> "Thou must leave thy lands, house and beloved wife, nor shall any of those trees follow thee, their short-lived master, except the hated cypress."—Horatius.

The passage between pools and fountains and lovely flowers and shrubbery up to the steps of the magnificent marble building characterized by symmetry and beauty in which the precious ashes of the empress have found their last resting place, is unequaled in the world for its exquisite architectural design. The real tomb is in the basement, side by side with that of her husband. The emperor had planned a separate mausoleum for himself of black marble on the opposite side of the Jumna. The building was commenced on a large scale, but death overcame him prematurely and he now shares the ample space of the mausoleum which was intended exclusively for the last resting place of his wife.

DELHI.

Delhi is unquestionably the most interesting city in India. I mean by this not Delhi of to-day with its 300,000 inhabitants, but the Delhi of long, long ago with its ruins of palaces, temples and tombs spreading over a length of ten miles by a breadth averaging a little less than six. In this area are comprised the traditional "seven castles and fifty-two gates" spoken of as far back as 1611 by the merchant Finch. This entire area is literally strewn with remnants of the glory of the Delhi of the past. The palace of the Moguls within the fortress of Delhi is a magnificent specimen of Indian architecture, a combination of symmetry and beauty of design. The road from Delhi to the old town of Qutab, twelve miles distant, passes over and on each side as far as the eye can reach ruins of former wealth and power come into view. In this great stretch of country millions and millions of people have lived and struggled centuries ago when Delhi was the Rome of India. The most conspicuous landmark of ancient history here is the minaret Qutab, 238 feet high, sloping from the foot. Although struck twice by lightning, it remains in a good condition of preservation, a strong reminder of the former powerful Mohammedan reign. The remaining historical ruins of Old Delhi in the immediate neighborhood of the colossal minaret are the mosque and tombs of Altamsh and Adham Khan, noted for their simplicity and architectural beauty. I met here a guard, a native, an old veteran who served under Lord Roberts during the Cabul war. He was proud of the decoration he wore on his breast, but, like all other guards in charge of public institutions, his right hand was converted into a big shallow cup for the reception of a handsome tip when I was ready to say goodbye. I took breakfast at the Rest House, kept by a Turk. In view of the nationality of the host, I expected to enjoy a good cup of coffee. The stuff that was served as coffee was absolutely beyond criticism. I asked to be shown the coffee used in its preparation. I was handed a package wrapped in a yellow paper and containing a pitch black pasty mass. It bore the following delusive label: "Symington's French coffee, prepared as in Paris and blended with the finest chicory." Judging from the taste and smell of the black infusion I became satisfied that it was made from poor chicory without even a blending of coffee. During our return trip the mercury in the thermometer went up to 126 F.

The Royal Palace in Delhi, within the great fort on the bank of the Jumna river, is in a good state of preservation and an imposing example of ancient Indian architecture. The great temples, old and new, scattered all over India, remind one very forcibly of:

> "No nation is so barbarous, no one so savage, whose mind is not imbued with some idea of the gods. Many entertain foolish ideas respecting them, yet all think that there is some divine power and nature."—Cicero.

Their grandeur and beauty suggest:

> "There's nothing ill can dwell in such a temple;
> if the ill-spirit have so fair a house, good things
> will strive to dwell within it."—Shakespeare.

A PARSEE WOMAN DOCTOR.

On my arrival at Jaipur the proprietor of the Rustem Family Hotel informed me that the only other guest in the house was a very distinguished Parsee woman doctor. He said that her reputation has spread all over India and that she was well known in the medical circles of Europe. Naturally these statements excited my interest. I was anxious to get some particulars of the medical and surgical work of women in India and to obtain additional information regarding the status of gynecology and obstetrics in that country. At dinner she occupied a seat opposite me at the table. She was a woman well beyond blooming youth with a yellow, freckled face, coal black eyes and hair. She was dressed in flowing silk of different colors, with ruby red in the lead, and displayed a profusion of what appeared to me cheap jewelry. She displayed a nervous disposition. She brought a new book with her, which she seemed not to read, but glance over in a very nervous manner during and between courses. The attention paid to her by the waiters proved to me that she was no stranger in the house. The proprietor of the house was, like her, a Parsee, a fire worshiper. From the appearance and behavior of the woman I became satisfied that I had a colleague to deal with from whom I had little to expect in the way of professional courtesy, and yet a possible opportunity to increase my stock of medical and surgical knowledge from such a rare source was too tempting not to make an effort to obtain it. With many misgivings I made the attempt very cautiously. Nothing but an occasional timid, lightning glance was exchanged during dinner. After dinner I sent my servant to her room with my card. He returned a few moments later with the discouraging information, "The lady is too tired." Disappointed as I was in receiving this not entirely unexpected news, I had the satisfaction of knowing that I had done what I deemed my duty. The next day I was "too tired," because in the meantime I had ascertained that the much famed Parsee woman doctor knew more about fire worship than medicine. A strict armed neutrality was maintained on both sides during the remaining time we were obliged to live under the same roof and to eat at the same table. A red cloth-bound book was her invariable silent table companion. It was not a medical book. It must have been either a novel or some occult treatise on fire worship. Of the meeting with this woman I can not say, as of all other members of the medical profession that I had the pleasure of meeting on my long journey:

> "Friendship, mysterious cement of the soul.
> Sweet'ner of life and solder of society."—Blair.

A SICK ELEPHANT.

From Jaipur I made a trip to the old capital city, Amer, its palace and wonderful mountain fortifications, eight miles distant from the present seat of government of Jaipur state. The old city is enclosed by mountain ridges 1,500 to 2,000 feet high, all strongly fortified. The city is now in ruins and nearly deserted. The palace and fortifications are in good repair. It was arranged the evening before that I should go by carriage as far as the base of the mountain, where an elephant would be in waiting, who would take me over the mountain ridge to the old city, and from there up the steep incline to the palace and fortification. When morning came I was informed that the elephant was sick and that a bullock cart would be sent instead. In making inquiry regarding the elephant's sickness I ascertained that the huge beast, quite old, had for several years been suffering at intervals from acute attacks of illness. He would fall down suddenly, with great pain. These attacks would last from three to four hours, when he would recover and remain in apparently good health until the next attack. I am quite confident that this giant beast is the subject of gallstone of enormous size and that it is only a question of a short time before he will die from a complicating suppurative inflammation of the bile ducts. When we came to the foot of the mountain the bull cart was conspicuous for its absence. I was determined to see the old city, palace and fortification, and there was no other alternative left but to make the trip of two miles and the climb of 1,500 feet on foot in a temperature of 132 F. as registered by my thermometer. It is needless to say that when I reached the palace my clothes were not only wet through and through, but my feet and socks were soaked in sweat that ran down the legs in streams.

After seeing the sights the belated bullock cart arrived, and on it I made the return trip. The cart was a first-class one, but what a vehicle! I first tried to ride à la native by doubling myself up in monkey style. As the springless rough cart jumped over stones, into and out of ruts, this position soon became unendurable. If it had not been for my inborn pride to surmount hardships I would gladly have jumped out, paid the owner and his old wife, who accompanied us and who helped her spouse in keeping the bullocks in motion for their trouble, and returned as I came, on foot. As it was, I rendered my position endurable by sitting crosswise in the cart with the numb legs hanging over one of the immense wooden wheels. I made up my mind at the time that as long as I remained in India I would ride on anything else but a bullock cart. It was my first and last experience with this rude antiquated native vehicle.

A CROCODILE TANK.

In the rear of the palace of the mahajarah of Jaipur is a tank covering several acres and containing a greenish turbid water covered for the most part with the scum of algae. It is inhabited by crocodiles and turtles. Stone steps lead down from the palace to the edge of the water. On the advice of the guide we had brought with us from a neighboring butcher-shop delicacies with which to feed the crocodiles. As soon as we reached the edge of the tank a palace guard commenced to make a barking noise and in a few minutes something appeared on the surface of the water which looked like a black log about fifteen feet long. The scuttling motion of the smaller end of the log showed that it was a crocodile on the way to accept the proffered invitation for tiffin. Slowly, lazily, the monster approached, and as it came up to the steps an immense moss-covered head with small slit-like eyes came above the surface of the water with the cavernous mouth wide open, displaying two rows of sawlike teeth. With unerring aim he caught the fragments of meat, which at once disappeared from the tongueless mouth. In less than ten minutes four other crocodiles and a large turtle were our guests. One of the largest of the beasts, a monster at least twenty feet long, took the liberty to climb the steps in order, I presume, to cultivate a closer acquaintance with us. A few blows with a club administered over the skull by the guard brought him to a standstill, and with a tremendous splash he returned to his proper element and disappeared from sight.

A BELATED BRIDAL CEREMONY.

One Sunday afternoon, while driving through one of the principal streets of Jaipur, I heard the ear-killing strains of native musicians. I brought the carriage to a standstill and a procession soon made its appearance, headed by the band. It was made up exclusively of women, from four to six abreast, each of them carrying on the head a basket containing sweets and other small presents. It was explained to me that this procession was in honor of a woman who in four weeks would make her first addition to the census of the city. It was not difficult to locate the bride of eight months in the first row of the procession. The husband was not there. He was at home awaiting the presents from his father-in-law, conveyed to him by the members of the procession. Later in the day I saw another procession on a larger scale announcing to the public a similar event. This custom, which to me appeared a praiseworthy one, is generally observed, and if the census taker of Jaipur keeps his ears ready and his eyes open, he has no difficulty in keeping track of the increase of the population.

FEAST OF THE NEW MOON.

As I was elbowing my way through the crowded streets of Jaipur, on Sunday evening, soon after sundown, I saw thousands of eyes looking in the direction in which the scorching sun had so recently disappeared. I was told that it was the feast of the new moon. It was a long time before I could see the goddess that was the object of worship that evening. I finally could make out the faintest outlines of a pale little sickle—it was the new moon. A great procession formed in honor of the event, headed by a native band, a gaudily caparisoned elephant, a squad of police, and followed by a company of native soldiers. The moon is held in high esteem as a goddess by both Brahmins and Buddhists, and the new moon is always greeted with joy and heralded by a religious procession.

A FAITHFUL ROMAN CATHOLIC PRIEST.

At Abu Road a gentleman, plainly dressed, with full beard well peppered with gray, entered my compartment and at once entered into a lively conversation. He spoke English as it is spoken in England and I took him for an Englishman, probably an employe in the civil service. In removing his cheap gray helmet I noticed that the top of his head as large as the palm of the hand was shaved. There was now no doubt in my mind concerning the vocation of my new companion. He informed me that he was a Roman Catholic priest, and furthermore, that he was a native of Switzerland, had been in India since he entered the priesthood 26 years ago, and that for eight years he had served as chaplain in the army, and was now on his way to visit a detachment of troops at Ahemabad. It further developed that our birthplaces in Switzerland were not far apart. It was a strange coincidence that I should find here in the wilds of India a countryman whose cradle was so near to mine. Rev. B. Jost, S.J.R.C., chaplain, has spent his whole professional life in India as a missionary and chaplain. He has never taken a vacation. He has seen the horrors of famine and the ravages of cholera, and other devastating epidemic diseases and has but once left his post when, stricken by fever and dysentery, his physician insisted on his being taken to Bombay to save his life. He was tenderly nursed by his brother priests, who for a long time had no hope that he would recover. His vigorous Helvetian constitution and determined will triumphed. He recovered and at once returned to his station. During the last famine, which extended over four years, he spent the money sent to him by friends in buying food, and dealt out rice and peas with his own hands during the hottest months of the year and was the means of saving 600 lives from starvation. He has exposed himself to all kinds of privations and dangers. In one day he dispatched four of the most deadly vipers in his yard and bungalow. All honor to such a brave, faithful servant of the Roman Catholic church.

> "Calamity is an opportunity to show one's virtue."—Seneca.
>
> "Fire tries gold, misery tries brave men."—Ibid.

ELEPHANTA CAVES.

The most interesting place I visited during my stay at Bombay was the Cave Temple in Elephanta Island, one hour and a half by sailboat from the city. The elephants' island is about three miles in circumference, is forest-clad and interlaced with a very pretty creeper, which blossoms more than half of the year. The caves, which in reality are a large Brahmin cave temple, are, according to Hindu tradition, 4,000 years old. There are five caves, but the one usually visited is the Great Cave, which is located about 250 feet above the level of the sea. It is hewn out of solid, hard rock. It is about 130 feet long and of the same width, and 17 feet high. At present it is only used as a place of worship on occasions of Shiva festivals, and in the middle of February a religious fair is held here. The sculptures which ornament the walls are cut out of the rock as well as the columns which support the stone ceiling. All of them show the ravages of time. Some of the columns are destroyed whole or in part, and large pieces have been split off from many of the mural figures.

> "In short, do you not see stones even yield to the power of time; lofty towers fall to decay and rocks molder away? Temples and statues of the gods go to ruin, nor can the gods themselves prolong their dates or give reprieve from fate."—Lucretius.

Of the nine allegorical figures illustrating the Brahmin cult I will only briefly describe the central one which represents Brahma, the creator; that on the right is Vishnu, the preserver, and Shiva, the destroyer. on the left. This is the most elaborate and striking of the sculptures. Brahma's face is expressive of peace, kindness and reflection. If the artist of this exquisite work of art made any mistake it was in sparing stone in forming the thick everted lips. Brahma holds a lotus flower in his left hand; Shiva holds the deadly serpent, the cobra. The significance of the pomegranate is creation; that of the lotus flower preservation, and that of the ugly snake in threatening attitude, destruction. The figures on each side are supposed to be doorkeepers, each attended by a dwarf. The figures of this masterpiece of the sculptor's art of 4,000 years ago are well preserved and a study of them will satisfy any observer of the great skill of Indian artists of that remote period. In front of the open temple is a small tank, in the shallow water of which a number of pigmy frogs enjoyed their childish frolic. No one can visit this venerable cave temple without becoming deeply impressed with the art of India long before the infant Moses was rescued from the crocodile infested Nile and long before Romulus was weaned from the breast of his ferocious wet nurse.

A GREWSOME CHARNEL HOUSE.

The Parsee people who came from Persia to India centuries ago, and of whom there are now about 100,000 in Bombay, are fire worshipers, and neither burn nor cremate their dead. They dispose of their dead by exposing them in a place where vultures can devour them in peace and safety. The Tower of Silence is the place where the hundreds of vultures are fed by the bodies of the dead Parsee. These towers, five in number, and the Fire Temple, the place of Parsee worship, are located on Malabar Hill, in elevated beautiful grounds which have an area of over 75,000 square yards. These grounds are surrounded by a high stone wall and strangers are not admitted without a special permit. The Towers of Silence, the largest of which measures 276 feet in circumference, are all surrounded by high walls, about 25 feet in height, and have an opening on the ground level, through which the dead bodies are carried. The corpse bearers are the only persons allowed to enter the towers. The bodies of the deceased are laid in grooves around the well, which is in the center of the tower. The corpses of children are laid in the center circle, those of the women in the second and those of the men in the outer ring. The bodies exposed in this manner are in a short time stripped of the flesh by the hundreds of vultures that are always in waiting for the arrival of the dead, and then the bones are thrown into the well, where they are allowed to decompose. On the day I visited this grewsome spot I saw hundreds of these bird cannibals perched in neighboring trees and on top of the towers, their gizzards evidently gorged with human flesh, motionless, hanging heads, drooping eyelids, sleeping, dreaming of the next feast on the first corpse of the community of fire worshipers. Should the interval between the dead marches be a long one, these cannibals of the air will be very hungry, a lively struggle will ensue for a share of the body exposed, fingers, toes and other parts of the body will be torn off and carried away to some quiet retreat, to be devoured at leisure. It is in this way that parts of the skeletons of the Parsee dead find their way into the dooryards, streets, gardens and on to house tops, grewsome relics of a grewsome practice of disposing of the dead.

CONCLUSION.

In conclusion, it is to me a source of great pleasure to extend my sincerest thanks to the members of our noble profession whom I had the opportunity to meet and to whom I am deeply indebted for their uniform courtesy and charming hospitality.

On Board S. S. Kronprinz Wilhelm,
Harbor of New York, Oct. 11, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Enuresis in Children.

After enumerating and excluding the many possible causes of enuresis and assuming it to be a neurosis, Ullman, in New York Med. Jour., states that an atony of the muscle, an insufficient innervation and hypersensitiveness of the lumbar centers exist and recommends the following outline of treatment:

HYGIENIC.

The child should have an outdoor life and should eat nutritious food at regular intervals. Stimulants, such as coffee and tea, should be interdicted and no liquids should be drunk before retiring. The sleeping room should be well ventilated and the bed should be hard. The child should be taken up once in the night to empty the bladder.

PSYCHICAL AND SUGGESTIVE.

Suggestion in combination with other treatment produces good results in these cases, according to the author. Corporal punishment should not be allowed, as the child's sleep becomes disturbed and he becomes fretful and goes to bed in fear. On the other hand, it is more reasonable to reward the child for not wetting the bed rather than to punish him when he does so. It is just as reasonable to inflict punishment for the involuntary movements of chorea or athetosis as in cases of enuresis. In order to obtain the best results the confidence of the patient must be obtained.

PHYSICAL AND MECHANICAL.

In this connection the different authors recommend massage, sponging with alcohol, friction and sea bathing. Kellogg recommends that the patient be placed in a sitz bath, his feet in a hot foot bath, the head cooled by a wet towel and vigorous friction applied to the hips, back and thighs and continued for three or four minutes at a temperature of 65 degrees F.

Ullman also outlines the method of Csellag, which consists of the following movements:

1. The rectum is freed of feces and massage is applied by means of the index finger to the sphincter vesicæ, the child lying in the lithotomy position. This should be continued by sphincter vesicæ for from half to one minute.
2. A deep circular massage is applied over the hypogastric region for two or three minutes.
3. The patient is placed in the dorsal position, with the knees tightly drawn together, and resists the attempt to separate them and then resists adduction. The same resistance of adduction and abduction is also carried out from the thighs. These movements should occupy two minutes.
4. The patient is then directed to stand against the wall or door and cross and recross one thigh over the other for a period of five minutes.
5. He is then taken across the knee and the lumbar and sacral regions are sharply tapped, producing rapid vibrations.

The galvanic current is recommended by some authorities; the negative electrode is placed over the lower dorsal region and the positive is applied to the perineum by means of a small button electrode, using a weak current for a period of eight minutes daily.

MEDICINAL.

The medicinal treatment of enuresis given alone produces negative results. The fluid extract of rhus aromatica, given in five-drop doses three times a day to infants, and increasing the dose with the age to fifteen drops three times daily. Atropin, one grain to two ounces of water, and giving five drops of this solution at 4, 7 and 10 p. m., is recommended. This preparation, according to the author, in connection with the movements mentioned, will produce good results.

A frequent cause of enuresis, according to Holt, is preputial adhesions, which should be broken up and the smegma removed. If phimosis is present it should be relieved by stretching or by circumcision. A narrow meatus should be cut to the proper dimensions. If stone in the bladder is suspected and if micturition is accompanied by straining and painful spasm, the bladder should be sounded. Pinworms in the rectum should be treated by salt water injections or other preparations. The reaction of the urine should be ascertained and if uric acid crystals are found, alkalies are indicated with a great deal of water.

The child should not be overtaxed at school and all excitement must be avoided. The diet must be carefully regulated and coffee, tea and beer prohibited. Sweets and all highly seasoned foods must be eliminated from the diet. Dr. Holt's experience is that the exclusion of meat is not indicated. The amount of water should not be limited except, perhaps, late in the afternoon a less quantity should be taken. The best diet is composed of milk, vegetables, fruits, meat and cereals. Punishment is of no value, and in most cases is harmful. The moral treatment is recommended, appealing to the child's pride and endeavoring to strengthen his will. When the incontinence is only at night the child should be instructed to retain the urine as long as possible during the day in order to accustom the bladder to a greater amount of water. Any anemia, malnutrition, indigestion and constipation must be corrected. Adenoids must be looked for and removed, as they tend to increase the irritability of the nervous system.

As to medicinal agents Dr. Holt ranks belladonna first; it is given in full doses until the physiologic effects are produced and it must be continued, in most cases, for many months. Atropin may be used instead of belladonna and is, perhaps, preferable, as its strength is more uniform. The proper dose should be obtained, as shown by its physiologic effects and continued for at least two months, and then gradually decreased if the incontinence has ceased. Strychnin may be added to the treatment in cases not yielding to the atropin alone. This preparation is especially useful where there is diurnal as well as nocturnal incontinence, for in such cases there is generally a lack of tone to the sphincter and also an increased irritability of the mucous membrane of the bladder. This latter preparation may be given in initial doses of grain 1/100 (.0006) twice daily, gradually increased to grain 1/50 (.0012) three times a day.

Other measures may be resorted to, such as elevating the foot of the bed at night, to keep the urine away from the neck of the bladder, and efforts should be made to keep the child from sleeping on his back. If a contracted bladder is suspected, as shown by a history of incontinence for several years and inability to retain more than one or two ounces at a time, the bladder should be distended daily to its normal capacity by means of warm water.

Sore Throat.

The term sore throat, according to Dr. Leonard Williams in the *Clinical Jour.*, London, includes the several varieties of bacterial involvement, such as the streptococcus and diphtheria bacillus. Aside from the bacterial examination, the knee jerks should be tested and the urine examined for albumin when diphtheria is suspected, as these phenomena, as a rule, occur early in the disease. If diphtheria is found to be the cause of the sore throat and antitoxin can not be obtained early, the author recommends that isolation be carried out in the usual way and a mixture containing the biniodid of mercury be given. This preparation is insoluble in water alone, but is freely soluble in an excess of potassium iodid. The following combination is recommended:

℞.	Hydrarg. perchlor	gr. i		06
	Potassii iodidi	gr. xx	1	30
	Glycerini	ʒii	8	
	Aquæ q. s. ad	℥viii	240	

M. Sig.: One teaspoonful to a tablespoonful three or four times daily.

In the foregoing mixture a double decomposition occurs, forming the biniodid of mercury about grain 1/8 (.008) to the ounce. The glycerin is added in order to increase the tendency to adhere to the fauces and thus increase its local effects. As a bactericide the biniodid is said to be four times as powerful as the perchlorid, and it does not have the tendency to throw down an inert albuminate when coming in contact with the tissues.

The author is emphatic in his statement that this preparation of mercury, excepting, of course, antitoxin, is a more effective foe of the Klebs-Loeffler bacillus than any other drug or inhalation or local application which has ever been used. In all forms of sore throat the heart should be frequently examined as in rheumatism and chorea.

In an ordinary case of sore throat the first thing to be observed is the degree of temperature. The tincture of aconite in one drop (.06) doses every hour, when the effect can be watched, is very valuable in reducing the fever and in making the patient more comfortable. The author prefers to administer aconite with other preparations which have also a local effect. In cases where a rheumatic origin is suspected, guaiac is recommended as a fair substitute for the salicylates, combined as follows:

℞.	Potassii chloratis	gr. x		65
	Tinct. aconiti	m. v		30
	Tinct. guaiaci ammon	ʒi	4	
	Mucil. acaciæ	m. xx	1	30
	Aquæ q. s. ad	℥i	30	

M. .Sig.: This amount to be taken at one dose and repeated every four hours.

As soon as the temperature has fallen the aconite should be discontinued, but the other ingredients kept up for a time. When rheumatism and diphtheria are absent the author recommends rather a complicated combination, including the tincture of iron, which is of value in such cases:

℞.	Tinct. aconiti	m. ii-v		12-.30
	Potass. chloratis	gr. x		65
	Liq. ferri perchlor	m. xx	1	30
	Liq. hydrarg. perchlor	m. x		65
	Glycerini	ʒii	8	
	Aq. chloroformi	℥ss	15	

M. Sig.: At one dose and repeated every four hours. Or half the quantity every two hours.

[The dose of potassium chlorate is larger than is usually recommended.]

The mercurial preparation is added to combat any cocci which escape the iron preparation. And the glycerin is added to prolong its local effect in the fauces.

Sciatica.

The disturbances in the sciatic nerve resulting in the symptom complex recognized clinically as sciatica is due to a variety of influences, traumatic, infectious, toxic and circulatory, and, accordingly, no one method of treatment can be expected to be serviceable in all cases. For this reason, when the causative factors can not be directly attacked and removed, the affection is likely to be long continued and attended with exacerbations. The large number of remedies employed is an index of the difficulties with which the treatment of the condition is surrounded. Excellent results have been obtained in a considerable number of instances from the injection of various substances about the nerve at its point of exit from the pelvis and in its course. Dr. J. Lange, in the *Münchener med. Woch.*, reports the successful employment of a modification of the method of infiltration-anesthesia introduced by Schleich. He first produces a wheal over the sciatic foramen and then introduces deeply through a long needle from 70 to 100 c.c. of a solution containing 1 part of eucain-B. and 8 parts of sodium chlorid in 1,000 parts of water. There is no pain as the needle passes through the skin and muscle, but the patient winces when the nerve or its sheath is reached. There is almost immediate relief, although some tenderness and induration persist for a day or two. Sometimes it becomes necessary to repeat the injection in the course of a few days. The treatment should naturally be reserved until other means have proved inefficacious; nor is it to be expected that it should be successful in all cases. The good permanent results observed in the cases treated by the means described are attributed not to the small amount of eucain introduced, but rather to the mechanical effects of the isotonic solution employed.

De Blois of Trois-Rivières lauds the fine results he has obtained with electricity in old, rebellious cases of sciatica. He uses the Morton current combined with static douches and sparks. In one of the six cases he describes in detail in the *Bulletin Méd. de Quebec*, the sciatica had persisted for two years, rebellious to the salicylates, massage and other measures, including other forms of electricity. During three months and a half he gave static douches for twenty minutes every second day, with sparks on the spine and over the affected nerves. Alternate days the Morton current was applied and superheated air locally for thirty minutes three times a week. By the second week the patient was so much improved that he could return to business, and by the end of three months and a half he was permanently cured. No recurrence has been observed in any case thus treated. His experience with the Morton induced static current has been equally favorable in neuralgia, lumbago and all kinds of muscular pains, as he relates in detail.

Medicolegal.

Contract with Health Officer to Care for Smallpox Cases.—The Supreme Court of Iowa says, in the case of Dewitt vs. Mills County, that, in December, 1901, an epidemic of smallpox broke out in the city of Glenwood, and the plaintiff was employed to render all necessary medical services to those afflicted with the disease. In an action brought to recover for such services, that part of the answer alleging that at the time of entering into the contract the plaintiff was a member of the city council of Glenwood, and also health officer of its board of health, was stricken out, on motion, as being immaterial and irrelevant. The ruling was correct. Glenwood is a city under special charter, and the board of health consisted of five members designated by the mayor. The plaintiff was not one of these, and there is nothing in the statutes prohibiting him, in an emergency, from being employed by the board of health at an agreed compensation. Section 1026, Code. This was not subject to the approval of the council, and the contract was not invalidated by Section 943 of the Code, prohibiting any member of the council from becoming "interested directly or indirectly in any contract for work or service to be performed for the corporation." The corporation referred to is the city, and, as the service was not to be rendered for it, but at the expense of the county, the statute does not apply.

Pregnancy and Miscarriage Not to Be Anticipated.—The Court of Appeals of Colorado says, in town of Florence vs. Snook, a personal injury case brought against the town, that pregnancy is not a usual and natural condition of women. It is an unusual and peculiar condition or state of health. A miscarriage can only result from an injury to a woman when in this unusual and peculiar condition, and, when relied on to increase the damages claimed, must be pleaded. The only authority cited opposed to the above doctrine was Tobin vs. Fairport, N. Y., 12 Supp. 224—a ruling by the judge of the Circuit Court of Monroe County, New York, on a motion for a new trial. But the Court of Appeals of Colorado says that the reasoning of the judge in the case cited was not at all convincing, and it is not inclined to be controlled thereby. No authority other than the Tobin case, it says, was cited, and an exhaustive examination failed to discover one in which the point under consideration has been expressly ruled. However, in a great many of the cases examined it appeared that the pregnancy of the plaintiff and the resultant miscarriage were alleged in the complaint, which would indicate that such allegation was deemed necessary.

Treatment of Dislocation of the Clavicle.—The Supreme Court of Iowa says, in the malpractice case of Tomer vs. Aiken and another, that the plaintiff suffered a dislocation of the clavicle from the acromion process. Dr. Aiken was called, but refused to treat the patient unless another physician were present. The family explained that they had been unable to get any one else, and the physician then sent for Dr. Trout to assist him. On his arrival Tomer was examined, and, according to four witnesses, the physicians announced that the collar-bone had been fractured or broken. Two of these were uncertain of the language used, while the physicians testified they concluded that it was a dislocation only, and Dr. Aiken that he had explained to Tomer that the collar-bone was broken away from the scapula; and in this he was confirmed by another witness. While the physician, in trying to explain the injury so as to be within the comprehension of those not familiar with medical terms, may have been misunderstood, yet, the court says, the evidence was such as to leave the question as to whether the case was properly diagnosed an open one for the jury's determination. If it be conceded, however, that the physicians declared it a case of fracture of the clavicle rather than dislocation, they were not liable unless improper treatment followed. No one claimed on the trial that the clavicle had been fractured, nor was there any evidence that the dressing applied was adapted peculiarly to remedying that defect. If suitable at all, it was as appropriate to the reduction of a dislocation. In these circumstances there was no occasion to submit the issue raised in the first count of the petition that, because of a mistake in the diagnosis, the plaintiff had been treated for a fracture rather than a dislocation, to the jury. If the treatment was such as reasonable skill and care exacted for the cure of a dislocated clavicle, the defendants were not liable, regardless of what their diagnosis may have been; otherwise they were. Was the dressing such as should have been used in reducing the dislocation and securing rearticulation? Ordinarily, little difficulty is experienced in reducing the dislocation. The trouble is to retain the bones in a position so that articulation will be effected. The narrow extremity of the articulating surface, the movability of the shoulder, the contraction of the muscles, and the possibility of ligaments falling between render the result somewhat experimental. In applying the dressing difficulty is experienced in securing a purchase which will hold the bones on the same level. A physician on whose testimony as an expert the plaintiff relied, freely admitted that "there is no assurance under any form of treatment that the bone is going to stay there," and testified further that "the results are not always satisfactory under any form of treatment, but the majority of them get well. Complete is more difficult than incomplete dislocation, but is sometimes successful. The majority are successful under modern methods." In this view all the physicians concurred. Failure to effect a cure under such circumstances, the court continues, furnishes no evidence of want of care or skill. The patient suffered considerable pain, but this, as the evidence showed, may have been incident to the character of the injury. The accident occurred on Wednesday, and Dr. Aiken did not call again until the Sunday following, and not again until a week from that day. If the injury required no attention during the intervals, he was not chargeable for neglect, if any there was; and in determining whether he was negligent, another physician's custom in his own practice could not be accepted as the criterion. That must necessarily depend on the custom or practice in similar localities in the treatment of such injuries. But if Dr. Aiken was negligent in not attending his patient as frequently as he should, this was no fault of Dr. Trout. He had nothing to do with the case after the first dressing was applied, and was in no way responsible for anything that happened thereafter, unless resulting from some defect therein; and the jury should have been so instructed. The dressing was put on at about 3 o'clock in the afternoon, and in the evening the plaintiff's attendant tried to reach Dr. Aiken, but could not do so, by telephone. She then telephoned for Dr. Trout, who responded that he could not come, and, on a second inquiry, that he was in bed and could not come. Without other showing save that Tomer was suffering much pain, which is usual in such cases, a physician was asked, in substance, whether under the circumstances disclosed, it would be proper treatment for a doctor to refuse to attend a patient. There was no claim that any relapse or evil consequences resulted. Another physician, in fact, called and thinned the wad under the arm. The employment of Dr. Trout had terminated at the completion of the dressing. He had the perfect right to refuse to be employed further, especially while the attending physician was still in charge of the case. Moreover, he was not advised that Dr. Aiken, who was at home, but temporarily without telephone connection, could not be found. As the case stood then, Dr. Aiken knew nothing of the plaintiff's wish that he call, and did not learn of it till Sunday, the day he had set for his next visit; and Dr. Trout was not in the plaintiff's employment, and was under no legal obligation to attend him. Manifestly, then, the objection to the question should have been sustained. That the answer, consisting of a somewhat extended discourse on medical ethics, was prejudicial, the court entertains no doubt. The court concludes that if the defendants were negligent, it was in the method of dressing adopted. But there was a difference of expert opinion on the subject, and the court decides nothing with reference thereto, except that the value of expert opinion can not be determined by counting noses, and, even though six physicians took one view and one the other, the issue was for the jury to decide. A judgment for the plaintiff is reversed.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 21.

1 *Psychiatry in Its Relation to Other Sciences. C. L. Dana, New York City.
2 Subnormal Accommodation and Premature Presbyopia. G. M. Gould, Philadelphia.
3 *Erotomania; Considerations on Its Manifestations and Pathogenesis, with the History of an Instructive Case. J. L. Corning, New York City.
4 *Occupations with Relation to Tuberculosis. J. B. Huber, New York City.
5 *Is Cesarean Section Ever Justifiable in the Management of Placenta Previa? R. Douglas, Nashville, Tenn.
6 *Radiotherapeutic Nihilism. G. G. Burdick, Chicago.

1. Psychiatry and Other Sciences.—Dana discusses the relations of psychiatry to economics, psychology, physics, psychotherapy, neurology and internal medicine, pathology and physiologic chemistry, criminology, forensic or legal medicine, and anthropology, and indicates the lines along which work can be carried with mutual help to all, but to the special advancement of a sounder knowledge of the pathology of the mind, the capstone of all the medical sciences.

3. Erotomania.—Corning defines erotomania as an enormous erethism of the psychic centers, with its morbid psychosexual ideation, co-existing with depression of the mechanism of normal sexual animality, and constant inhibition of desire. Like other monomanias, erotomania has its root in degeneracy. Consequently, the various physical and mental stigmata may be found in the erotomaniac. Among the more striking physical stigmata are deformities of various kinds, such as malformations or incomplete development, or enormous overgrowth. Hence, malformation of the external ear, asymmetry of the face, unequal development of the two halves of the cranium, harelip, strabismus, irregularity in the shape and position of the teeth, flat, ridged or pointed palate; enormous development of the jaw, observed in criminals, and webbed or supernumerary fingers. Prominent among the mental stigmata are lack of mental equilibrium, hyperemotionality, inordinate impulsiveness, powers of imagination so extraordinary as to attain the dimensions of veritable hallucinations, domination of the mental sphere by delirious ideas, culminating in impulsive, explosive acts; impairment of the will, imperfect development of the moral sense, with consequent impairment of the ability to distinguish right and wrong; and, finally, inordinate egoism and total lack of power to take an impersonal view of anything. The affection may occur in either men or women, but is more common in the former. It is to be confounded neither with nymphomania nor satyriasis, because the generative instinct seems to be entirely wanting. It is an affection of the imagination, a morbid extravagance of the ideal. In its individual manifestations it presents the characters of a love, pathologic and essentially psychic, and devoid of carnal appetite. There is nearly always a tendency to personification. The subject foists his ideality on a living person, or on an inanimate object. Though his intelligence may show him the consequence of yielding to his obsession, he is powerless to resist it. His obsession is usually for one of the opposite sex. Erotomania may disclose itself in youth, but it is really a disease of adult life, coming on after puberty and often ending in dementia. It may

co-exist with nymphomania or some other form of sexual aberration or with mysticism.

4. **Occupation and Tuberculosis.**—The diagram which forms the basis of Huber's paper was prepared by the statistician of the Charity Organization Society of New York City. Fifty-three occupations are considered. The tuberculous death rate of marble and stone cutters is shown to be six times that of bankers, brokers and officials of companies, and is undoubtedly due to the irritation of the respiratory tract by remote, inhaled particles of stone. The mortality among cigarmakers is five times as great as that of bankers, and is due largely to the irritating effects of tobacco on the mucous membranes; but the bad air and the wretchedly insanitary conditions under which these people work are essential factors. Saloon keepers, hotel servants and bartenders show a heavy mortality, as do the hat and cap makers. The tailors and the garment makers, however, have a death rate which would be surprisingly low were it not for the fact that Jews, who, as a race, enjoy a comparative immunity to tuberculosis, monopolize these trades. Glassblowers show the influence of exposure to extreme heat; they are, also, apt to sit for many hours in constrained positions. Among the musicians, the irregular, bohemian life led by many of them is largely responsible for the large death rate, 350 per 100,000. The mortality extremes per 100,000 living in the same occupation are, 92 for the bankers and 540 for the marble and stone cutters.

5. **Cesarean Section in Placenta Previa.**—Douglas attempts to determine the justifiability of cesarean section in the management of placenta previa by presenting a study of methods and results, as follows: De Lee, 30 cases without a maternal death; Fry, equally successful in 14. Hirst collected 104 cases, with a death of only one mother. Sloan Maternity, New York, maternal mortality, 12 per cent. Boston Lying-in Hospital, 75 cases, maternal mortality, 10.16 per cent. Strassmann, in a series of 231 cases, found a maternal mortality of J.25 per cent. Douglas, 12 cases, with a death of two mothers. Dorland collected 88 cases of central attachment of the placenta, with a maternal mortality of 22 8/11 per cent. Schauta finds 18 per cent. of mothers lost in 50 cases of placenta previa centralis. As to infantile mortality, Douglas quotes these figures: Hirst, 50 per cent.; Sloan Maternity, 45 per cent.; Strassmann, 6 per cent.; Schauta, 70 per cent. Fry lost 9 children in his 14 cases, in which all the mothers were saved. Douglas says that in a series of cases of placenta previa one may expect a maternal mortality of 10 per cent. and a fetal mortality of 50 per cent. In central attachment of the placenta, maternal mortality, 20 per cent. and fetal mortality, 75 to 85 per cent. As to the subsequent history of 80 patients who had suffered from placenta previa, Radtke found that 30 per cent. were sterile, 23 per cent. aborted at subsequent pregnancies, 57 per cent. suffered from anemia, vertigo, headache, etc. Endometritis, laceration of the cervix and of the perineum and other pathologic conditions were found present. As to cesarean section for placenta previa, Deaver, in 24 cases, had a maternal mortality of 20 per cent. By selecting from these cases the patients that were proper subjects for the operation, the maternal mortality is reduced to 18.75 per cent. The fetal mortality is reduced to 50 per cent. These are the results in placenta previa with rigid cervices and other unfavorable conditions. Douglas is firmly convinced that the maternal mortality can be reduced below 10 per cent., but does not anticipate a reduction in the fetal mortality below 50 per cent. He says that cesarean section is indicated in cases of central attachment of the placenta in a primagravidia with an undilated and rigid cervix, with moderate hemorrhage, a viable child, and when the operator is a capable abdominal surgeon. The contraindications to the operation are an exsanguinated patient, or one who has been subject to various obstetric efforts, the presence or probability of infection, a dead fetus, and an unskilled operator.

6. See abstract in The Journal, xliii, p. 908.

Medical Record, New York.

January 21.

7 Contribution to the Etiology of Malaria, and to the Analysis of Some Relations of Meteorology to Chemical Pathology. H. Wakefield, New York.
8 *Use of Sulphate of Copper Alone and in Combination with Lime for the Destruction of Mosquito Larvæ, as a Deodorant, and as a Disinfectant. A. H. Doty, New York.
9 The Subconscious Self. J. A. Gilbert, Portland, Ore.
10 *Some Painful Affections of the Feet; Their Diagnosis and Treatment. C. Ogilvy, New York.
11 *Inflamed Appendix in an Inguinal Hernia, Simulating Strangulation. J. E. Golding, Brooklyn, N. Y.

8. **Sulphate of Copper as a Destroyer.**—The investigation carried on by Doty at the New York Quarantine Station covered the following points: 1, The use of copper alone, or in combination with lime, for the destruction of mosquito larvæ; 2, as a deodorant; 3, as a disinfectant. He found that in the destruction of mosquito larvæ and as a deodorant the use of copper in combination with lime is more effective than when used alone. This mixture destroys the larvæ by rapidly removing from the water in which they are contained the organic matter or nourishment on which they depend for life, and that this result is not due to a toxic effect produced by the copper or lime. In swamps or bodies of water covering large areas, where fresh water and organic matter are constantly being added, the use of the mixture is hardly practicable, and its value in these instances is not very apparent. However, in collections of stagnant and offensive water, where the mosquito larvæ are frequently found in enormous numbers, the mixture of copper and lime, one pound of copper and one pound of lime to ten gallons of water added to 500 gallons of water to be experimented with, is of great value, inasmuch as it not only destroys larvæ but deodorizes the offensive fluid. In swamps, etc., where there is usually but little sunlight, and where there is the most active propagation of the mosquito, there is no doubt, says Doty, as to the superiority of petroleum, not only for the destruction of the larvæ but in driving away the winged insects. Doty suggests the use of copper and lime, or petroleum, only when it is impossible to carry out the scientific and radical measures for the extermination of the mosquito; that is, proper drainage and the observance of the laws of modern sanitation. The action of the mixture as a deodorant is rapid and permanent; it is practically harmless, and is cheap and easily made, and seems to comply with the requirements of a typical deodorant. Furthermore, its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. Experiments to determine the germicidal value of sulphate of copper are now under way in the laboratory of the quarantine station. In tests made with typhoid bacilli in distilled water, tap water, water from sewers, and broth, it was found that in distilled and tap water a solution of 1 to 10,000 killed in one hour. In distilled water a 1 to 100,000 solution killed in two hours, while in tap water it required from six to eight hours to produce the same result. In water taken from street sewers a 1 to 1,000 solution was required to kill typhoid bacilli in one hour, while in broth it required a 1 to 300 solution for this purpose. A 1 to 10,000 solution in distilled water killed the cholera organism in twenty minutes.

10. **Painful Affections of the Feet.**—Ogilvy emphasizes the importance of proper care and treatment of affections of the feet, describing, in particular, eversion, flatfoot, metatarsophalangeal pain, and painful heel. Eversion is the most common deformity. It is usually termed weak ankle. It results in a breaking down of the arch of the foot and flatfoot. An early diagnosis is of importance, for it is very difficult to transform an everted, painful foot with a broken down arch into one which is capable of performing all its functions without pain or discomfort. The treatment of these various conditions is described in detail. The anatomy of the foot and the subject of proper footwear are also considered.

11. **Appendix in Hernial Sac.**—Golding's patient complained of pain in the right inguinal and scrotal regions, vomiting and constipation. Examination revealed a firm, tender tumor i

the right side of the scrotum, over which the skin was red and glazed. The tumor was irreducible, dull on percussion, not translucent nor fluctuating, and gave no. impulse on coughing. Temperature, 99.2; pulse, 88. On opening the sac, about eight ounces of clear straw-colored fluid escaped, and the sac was seen to contain an elongated body about ten inches long and one inch in diameter, which was intimately adherent to it. This body was separated, and on incising it it was found that the appendix occupied its center and was surrounded by a thick mass of inflammatory connective tissue. Golding deems two points in the case worthy of note: 1. The unusual length of the appendix. 2. The similarity in the symptomatology of strangulation and an acutely inflamed appendix occupying a hernial sac.

Medical News, New York.

January 21.

12 *Precautions Used by the New York City Department of Health to Prevent the Spread of Contagious Diseases in the Schools of the City. Thomas Darlington, New York.
13 Relation of Cholin to Epilepsy. (To be continued.) Julius Donath, Budapest, Hungary.
14 Some Ocular Reflexes (Psychoses). S. W. S. Toms, Nyack-on-Hudson.
15 Case of Postdiphtheritic Paralysis. W. J. Butler, Chicago.
16 Cystoscope as an Aid in Genitourinary Surgery. Follen Cabot, New York.

12. **Medical Inspection of New York City Schools.**—Darlington describes the medical supervision of the schools of the city of New York and the precautions that are taken to prevent the spread of contagious diseases. The Board of Health appropriates annually a sufficient sum to appoint 150 school inspectors at the rate of $30 a month, each inspector being assigned one or two schools. The schools are visited daily, and the inspector examines all children, whom the teacher has sent to his office in the school, suspected of having any contagious disease. Any case of measles or scarlet fever is visited at once by a diagnostician of the department; if the diagnosis is confirmed the usual steps are taken to prevent the spread of the disease. In the case of diphtheria, the inspector secures the material for making a culture. A daily list of all contagious diseases is sent each day to each school in the city, thus enabling the school to send home any child from a family where contagion is reported. Each inspector has about 5,000 children under his charge, whom he is required to inspect once a week. Inspectors must visit all public schools assigned to them before 10 a. m. each school day. The first visit is called the morning inspection, and consists in calling at the schools to inspect all children isolated by the principal as possibly sick with some contagious disease; all children who have been absent from school for a few days; all children excluded from school attendance. A routine inspection consists of a class-to-class examination of each child present. The children march by the inspector, pull down their own eyelids and open their mouths wide, the inspector making a visual inspection as the child passes him. If the child is suspected of having any trouble which is not quite evident, it is ordered to the inspector's office in the school for a more thorough examination. Each child excluded from school is given a properly filled out exclusion card in a sealed envelope furnished by the department. The inspectors are required to make daily reports. The inspector must ascertain from the principal the names and addresses of all children absent from school for a few days for no known reason. These addresses are visited by the inspector to ascertain the cause of absence. Thus many unreported cases of contagious diseases have been found. Janitors and their families are not allowed to occupy apartments in the school buildings. Children with acute eye disease and pediculosis, showing signs that they are under treatment, are allowed to attend class. The nursing system in force in New York was established for the purpose of caring for communicable diseases, such as pediculosis and conjunctivitis. Each nurse is required to keep a record of all cases treated by her and she has to visit at their homes all children excluded from school when they did not return for reinspection on the day appointed by the school inspector: also to instruct parents in the proper way of caring for children's heads at home. Cases attended by the school nurse are pediculosis, conjunctivitis, ringworm, impetigo, favus, molluscum contagiosum and scabies. The diagnosis is sent to the nurse by the school inspector and she treats the cases accordingly, the supplies required for such treatment being furnished by the department of education. At the present time there are nineteen school nurses in the borough of Manhattan. In order that children excluded from school could be followed and watched closely to see that the instructions given them by the medical inspector were observed, a card-index system was adopted. This system provides a card for each class in each school. On this record is kept of every case of contagious disease, with complete data. Because of the many cases of trachoma existing among school children, it became necessary to give the inspectors special instruction for the purpose of becoming better qualified in the diagnosis of this disease, and to establish an eye hospital and dispensary of the department of health. During the school months there were four operators and four clinicians, also two anesthetists. The total number of children treated at this hospital during the year 1903 was 15,936. The inspectors also are required to make throat cultures of all children showing the slightest redness and hypertrophy of the tonsils. Two inspectors are assigned for the work of vaccinating school children. No child is accepted in the public schools unless it can show either a white certificate stating the age on which vaccination was performed, or a yellow certificate of successful vaccination. While the department does not directly compel a child to be vaccinated, it does enforce the law that if the inspector in charge of the school deems vaccination necessary the child must be vaccinated or it will not be allowed to attend school. Darlington mentions the following as being outside of department control: 1. Proper care of the children's outer garments at schools; 2, proper aëration of classrooms; 3, proper lighting; 4, ample accommodation for each child; 5, sufficient playground facilities; 6, establishments of baths in public schools; 7, examination and compulsory care of the children's teeth and aural cavities. Examination and correction of refractive errors; 8, correction of deformity of locomotor apparatus; 9, exclusion of all cases of nervous disease; 10, segregation of children with inferior mentality.

New York Medical Journal.

January 21.

17 *Abuse of Water-Drinking in Disease. Maurice Manges, New York.
18 Surgical Cure of Intractable Dyspepsia, Depending on Gastric Ulcer and Its Complications. Wm. D. Haggard, Nashville, Tenn.
19 Pathology and Treatment of Diabetic Gangrene of the Lower Extremity. H. J. Whitacre, Cincinnati.
20 Use of Rubidian Iodid in Optic Atrophy. P. Bartholow, New York.
21 Present St[illegible]ergency Work. (Concluded.) U. F. M[illegible]
22 *Meralgia P[illegible] Typhoid. L. L. Von Wedekind, Washington, D. C.
23 Vasodilators and Contractors. G. W. Greene, Auburn, N. Y.
24 *Delayed Results of a Wound of the Brain. P. F. O'Hanlon, New York.

17. **Abuse of Water Drinking in Disease.**—Manges calls attention to some facts in this connection that are not heeded as well as they might be by physicians. The normal quantity of water for a healthy adult, exclusive of the water contained in food, is about 1½ to 2 liters a day. Only a small portion of the water ingested is absorbed by the stomach, the maximum quantity being 10 per cent. The other 90 per cent. is passed on into the intestines. Every drop of water introduced into the system must be excreted from it, directly or indirectly, by the heart; hence, the larger the quantity of liquid introduced, the greater the amount of energy demanded of the heart for its disposal. The functions which are principally affected by water drinking are, first, metabolism; second, temperature; third, circulation, especially the heart; fourth, glandular secretions, and fifth, peristalsis. Diuresis does not depend on the quantity of water introduced into the body, but on the blood pressure from the kidneys. When the heart is no longer competent, the daily quantity of water should be restricted to 1¼ liters, not including the water con-

tained in food. In the earlier stages of nephritis, when good compensation exists, this restriction is advisable as a prophylactic measure. On one day in the week the patient is allowed to drink as much as he pleases. This insures the removal of any nitrogenous salts which might have accumulated. Manges' experience has proved that the results obtained from such restriction of water are decidedly better than those following the unrestricted use of water. In heart disease, the abuse of fluids is less evident, but none the less serious, in its consequences. A routine use of stenciled treatments wrecks many a compensation or converts latent into actual cardiac disease. This is especially true at the various spas. The chronic hyperemia of the kidney, the existence of dropsy and the hydremic plethora and anemia in advanced cardiac conditions are sufficient indications of the need of great care in warning patients against too much liquid in these conditions. The object should be to regulate the blood pressure in the kidney rather than to crowd more work on the already struggling heart by carelessness in fluid regulation. In chronic gastric and intestinal disorders the significance of this abuse can be more regularly recognized. Water has little effect on metabolic disorders. As regards free flushing for the removal of calculi or gravel, etc., Manges advises that we always first ascertain the condition of the circulation and then be sure that the increased intake of water be represented by an adequately greater amount of urine. In acute infectious diseases and in septic conditions we must also guard against the dangers which may follow from crowding too much water at ordinary temperatures. The water should always be given cold, and in frequent, small quantities. He strongly condemns the practice of simply directing the patient to drink as much water as possible without considering the condition of the heart, circulation and kidneys.

22. **Meralgia Paresthetica Following Typhoid.**—In this patient Wedekind found almost complete anesthesia of the external and anterior aspects of each thigh, the outline on each being identical, one spot about the size of a silver dollar, of exquisite hyperesthesia, along the inferior line of demarcation on the right thigh only. Digital pressure produced deep-seated pain like that in the subperiosteal abscess. Myalgesia was general in both thighs and legs after continued exercise, but disappeared completely after a long rest. A spot on the right side of the chest, three inches below and to the right of the nipple, suddenly flared up and burnt for a moment and as suddenly ceased. There was awkwardness and uncertainty in his gait, suggesting partial loss of control of co-ordination. The treatment has been rest, strychnin and massage; the results, not great. The personal history is absolutely negative.

24. **Delayed Results of Wound of Brain.**—O'Hanlon relates the case of a man who, during an altercation, was shot in the head, the bullet entering through the temporal bone. No ill results followed until about the third month afterward, when the man was taken with fits, which recurred at irregular intervals for a period of about fifteen months, when the patient died. Autopsy revealed a bullet resting beneath the anterior lobe of the right hemisphere at the base. The track of the bullet was plainly visible through the brain tissue, beginning at the left frontal lobe. An examination of that part of the brain, broken down into an abscess, showed a small piece of lead, to which adhered a sharp piece of bone, which had set up the irritation resulting in the formation of the abscess.

Boston Medical and Surgical Journal.

January 19.

25 Humane Treatment of Malignant Disease from a Surgical Point of View. J. C. Munro, Boston.
26 Brief Consideration of Some of the Results of the Surgical Treatment of Cancer of the Stomach. R. H. Fitz, Boston.
27 *New Method of Performing Gastroenterostomy. A. H. Gould, Boston.
28 Management of Diabetic and Non-Diabetic Glycosuria. (To be continued.) Heinrich Stern, New York.
29 The Brown-tail Moth Eruption. H. P. Towle, Boston.

27. **New Gastroenterostomy.**—Gould has devised an operation for gastroenterostomy which is founded on the following principles: 1. That the pylorus should never be closed merely to insure the patency of the artificial opening. 2. That the gastroenterostomy opening should be so constructed that it will remain open of itself. 3. That an enteroenterostomy should be performed between the proximal and the distal coils of the jejunum. 4. That as much as possible of the food should be prevented from entering the stomach without entirely cutting off the jejunal patch from the protection of the bile against the eroding effect of the gastric juice. The stomach is delivered, and the posterior wall is exposed in the usual way. The mesocolon is torn through for a distance of two and a half inches in a direction parallel with the blood vessels and opposite the lowermost point of the greater curvature. The stomach clamp is applied at right angles to this curvature, taking up a fold about three and a half inches in length, and leaving a margin of one inch between the end of the fold and the greater curvature. The fold is incised and the redundant mucous membrane is removed in the usual way. The edges of the incision are seized with forceps at points midway between the two angles and pulled apart as far as possible, thus making the incision run parallel to the greater curvature. The stomach clamp is again put on, leaving a good margin of free edge for subsequent sewing. The ends of the incision, as originally made, will now be placed in the middle, and will have a tendency to sag unless clamped tightly. The jejunum is brought out and a longitudinal fold three inches long is clamped about ten inches from the beginning of the jejunum. The first seromuscular stitch is next placed. Each end of the continuous stitch is left long for future use. The jejunum is opened at a point opposite the middle of the stomach incision and enlarged a short distance either way gradually, until the corners of the stomach and jejunal openings are exactly matched. The cut edges are sewed together with a No. 0 chromic continuous stitch, which starts in the middle of the incision, half way between the two corners, and goes outward to the corners on either side. The first corner is turned and the thread tied. After turning the second corner the stitch is carried over the front and tied to the end left at the first corner, making a perfectly firm and accurate approximation of both corners. The clamps are removed and the rough edges on the front of the suture are buried with a continuous seromuscular stitch. The long end left by the first seromuscular stitch is commonly used for this stitch over the front. An interrupted seromuscular stitch is placed at either angle of the anastomosis, about one-quarter of an inch away, as an extra support. The edges of the incised mesocolon are finally caught down with interrupted stitches to the stomach around the anastomosis. Gould next makes what he deems a successful and permanent valve by inverting the intestine transversely instead of longitudinally. This technic requires three or more layers of sutures; the first are interrupted mattress stitches placed around the circumference of the gut as if an end-to-end suture had been made. This rolls in the bowel circumference and forms a circular constriction. The interrupted stitches are followed by two layers of continuous stitches, which turn in still more of the bowel and thus make a small diaphragm across the lumen. By this procedure the proximal coil is shortened about three-quarters of an inch. The site of the valve should be about three and a half inches below the gastroenterostomy. A lateral anastomosis is made about one inch below the valve. Before closing the anastomosis, the clamp is removed and a blunt instrument introduced upward in the coil to ascertain whether the artificial diaphragm is wide enough to obstruct the lumen. If the inturned edge is too scanty, another continuous stitch is placed around the bowel until exactly the proper amount of obstruction has been made. The enteroenterostomy is then completed and the abdomen closed.

St. Louis Medical Review.

January 14.

30 Control of Municipal Medical Institutions; with Special Reference to the City of St. Louis. John Green, Jr., St. Louis.

31 Woman, Education and Maternity. William Lee Howard, Baltimore.
32 Synopsis of the Nutrition of Man. (To be continued.) Walther Nic Clemm, Darmstadt, Germany.

Lancet-Clinic, Cincinnati.

January 21.

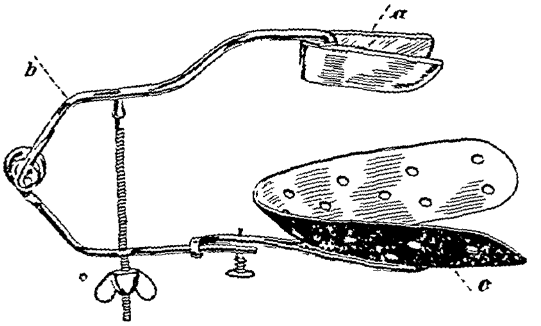
33 Criticism of Recent Surgical Literature on Diseases of the Stomach. Henry W. Bettmann, Cincinnati.
34 Tenotomy of the Tendo-achilles in Partial Amputations of the Foot, also in Oblique, Compound and Comminuted Fractures of the Tibia and Fibula. J. P. Webster, Chicago.
35 The Radiogram in Orthopedic Diagnosis. Albert H. Freiberg, Cincinnati.
36 Ethics of Gonorrhea in the Female. E. S. McKee, Cincinnati.

Annals of Surgery, Philadelphia.

January.

37 *An Adjustable Metallic Interdental Splint for the Treatment of Fracture of the Lower Jaw. Rudolph Matas, New Orleans.
38 *Wounds of the Liver. B. T. Tilton, New York.
39 Congenital Elongation of the Left Lobe of the Liver. L. J. Hammond, Philadelphia.
40 Surgical Treatment of Chronic Dyspepsia Due to Defective Drainage, and Chronic Inflammation of the Stomach Resulting from Gastric Atony and Dilatation. J. G. Sheldon, Telluride, Colo.
41 Contribution to Surgery of Gastric Ulcer. J. Niemack, Charles City, Iowa.
42 *Penetrating Wounds of the Abdomen. F. L. Hupp, Wheeling, W. Va.
43 *Hepato-cholangio-jejunostomy. A. E. Maylard, Glasgow.
44 Volvulus of the Cecum. E. M. Corner and P. W. G. Sargent, London.
45 *An Operation for Inguinal Hernia. C. L. Scudder, Boston.
46 Luys' Instrument for the Intravesical Separation of the Two Urines. F. P. Vale, Washington.
47 Dislocations of the Patella, with Rotation on Its Horizontal Axis. W. S. Cheesman, Auburn, N. Y.
48 *Matas' Operation for Aneurism. H. B. Gessner, New Orleans.
49 Loss of Entire Lower Lip. S. Watts, Baltimore.
50 Regulable Combined Dropping and Pouring Device for the Administration of Anesthetics. B. C. Pedersen, New York.

37. **Adjustable Metallic Interdental Splint.**—Matas' splint is constructed on the principle of a clamp which holds the entire projecting arch of the jaw (from the chin to the angles) firmly in the grip of a flexible mouthpiece which fits like a gutter over the entire dental arch; and of an external plate or chin cup, which extends from the symphysis to the angle. The mouthpiece and chin plate are both detachable. The chin cup is made adjustable to various degrees of prognathism by a sliding joint fixed by a pin and thumbscrew. The appliance consists of three component parts: 1. The mouthpiece or dental splint proper (*a*), which is hollowed in three planes to fit loosely over the crowns of the teeth, the groove or gutter broadening from before backward to correspond with the increasing diameters of the molars. The edges of the splint form two flanges or rims, which project downward; the outer flange extending to the neck of the teeth on the outer or buccal side, the inner flange or rim dipping to a lower level, almost touching the gums on the inner or lingual side. This splint is made of block tin and is indented approximately on a level with the bicuspids by two deep cuts which penetrate the gutter to its outer rim, leaving a narrow wedge-like space which is closed at the apex by the outer or labial rim of the splint. The softness and flexibility of the metal of which the splint is made, together with these (Wiley) cuts, allow the operator to adjust the splint to the varying contour of the lower dental arch as it is met in different individuals. The splint is made in three different sizes, for children, for young persons and for full-grown adults. The breadth of the gutter can be altered by stretching and modeling the flanges. The dental gutter is also provided with a deep groove or slot in the center of its inner or labial surface, which fits the hook at the tip of the clamp and holds it very firmly in position when it is locked. 2. The chin piece (*c*) is made of perforated aluminum and is shaped to fit the contour of the jaw. It can be moved backward and forward on a sliding joint, which is adjusted by a thumbscrew and is attached to the lower limb of the clamp. In order to prevent injurious pressure on the skin of the chin, it is padded with cotton, covered with a layer of gauze, and smeared with zinc oxid ointment. 3. The clamp (*b*) which holds the mouth and chin pieces together is made of soft steel and consists of an upper and lower limb, screwed together at a considerable distance in front of the mouth. The upper limb projects from the middle of the mouth and is curved over the lower lip so as to allow the mouth to be closed, a very necessary provision to prevent salivary dribbling and to permit a complete control of the mouth in eating and drinking. The pressure required to hold the jaw firmly in the grasp of the intrabuccal and extrabuccal pieces is obtained by a screw attached by a swivel joint to the upper limb of the clamp, the pressure being regulated by a thumbscrew which acts on the lower limb of the appliance. The chief object of this splint is to immobilize the broken fragments of the jaw without restricting its movements as a whole. It is especially intended for compound fractures of the maxillary arch, whether single or multiple, in which there is a marked tendency to recurrent displacement, and which require frequent inspection and antiseptic irrigation of the aural cavity.



38. **Wounds of the Liver.**—Tilton considers the injuries of the liver and discusses their special signs, prognosis and indications for treatment. The modern tendency is toward early laparotomy. Open wounds should, without exception, be treated by enlargement of the wound, exposure of the liver, and determination of the site and extent of the injury. Care should be taken to examine the entire liver, as a second wound may remain unnoticed and give rise to fatal bleeding. The best methods of stopping hemorrhage are by the use of sutures or gauze packing. If the former are used they should include considerable liver tissue at the edges of the wound and, if possible, go down to its full depth. Gauze packing is particularly suitable for contused wounds, gunshot wounds, and punctured wounds, and is, furthermore, a useful addition to suture. The thermocautery is of very little value in arresting hemorrhage from the liver. The blood and bile can easily be removed by flushing the abdomen with hot saline solution or by dry sponging. Drainage is employed in subcutaneous wounds chiefly for the purpose of arresting hemorrhage. In gunshot and stab wounds with a dirty instrument, it is a valuable means of preventing local infection of the organ or general infection of the peritoneal cavity. As regards subcutaneous ruptures, the mild cases without marked symptoms of collapse or of internal hemorrhage should be treated expectantly.

42. **Penetrating Wounds of Abdomen.**—Hupp reports six cases, 5 of them pistol shot wounds and 1 a stab wound.

43. **Hepato-Cholangio-Jejunostomy.**—Maylard's case was a man, aged 52 years, who complained of pain in the epigastrium and vomiting. The onset of the symptoms was attributed to an accident which occurred twenty-two years previously, when he was struck over the lower ribs on the right side. This was immediately followed by severe pain at the seat of the injury, which continued for several weeks. After that he was subject to intermittent attacks of pain, some of which were exceptionally severe, and on one occasion the attack was accompanied by hiccough and vomiting lasting for twelve days. He generally noticed, after an attack, some yellowness of the skin and conjunctiva, and once there was severe jaundice which lasted for three weeks. On opening the abdomen, Maylard found that the gall bladder was replaced by a shrunken, indurated mass of tissue, embracing the liver, the pyloric end of the stomach and the hepatic end of the

transverse colon. The stomach was not dilated. Neither the pylorus nor the first two inches of the duodenum were obstructed. No constriction could be detected in the colon, but directly opposite the most marked indurated mass a slight indentation was felt, suggestive of the possible healing of an opening through which a gallstone might have passed. There being no obstruction anywhere, the wound was closed. The patient continued in good health for nearly four years, when jaundice set in and he also commenced to suffer from a general constitutional deterioration. There was a marked ventral hernia at the upper part of the median cicatrix. The urine was deeply bile stained and the feces clay colored. Seven months later Maylard undertook to establish a communication between the dilated ducts in the liver substance and the duodenum. The abdomen was opened along the course of the old transverse cicatrix and the incision extended. Extreme matting was encountered. The liver was much shrunken, of a deep mottled purple color and lay high up under the ribs. With much difficulty the jejunum was stitched to the margin of the liver for about two inches by means of a continuous sulphochromic-gut stitch. The liver was then incised for about one and one-half inches, the bowel opened for the same extent, and the opposing surfaces beyond the two cuts were united by interrupted stitches. In order to avoid tension on the stitched gut, the bowel was anchored at the upper part to some adherent omentum. A separate incision was made posteriorly to drain the right lumbar fossa. The patient made an uninterrupted recovery from the operation, but died about a month later from slowly increasing emaciation and weakness. There was no postmortem. On the second day after operation the stools were somewhat darker in color, but further than this no change seemed to have occurred in the general condition of the patient. Maylard concludes that this operation may be safely undertaken without fear of any immediate or comparatively remote dangerous results.

45. **Operation for Inguinal Hernia.**—The facts which Scudder considers important in the operation for the cure of an inguinal hernia are: An ample cutaneous incision; absolute hemostasis; an anatomic dissection of the parts concerned, so that every structure is clearly recognized; the complete isolation of the neck or abdominal portion of the sac; the complete emptying of the sac of both adherent and non-adherent contents; the suture of the hernial sac at the level of the peritoneum of the anterior abdominal wall; the exact suture of the abdominal wall superficial to the peritoneal sutures, including always one or two sutures placed over and above the sutured sac; the minimum of trauma to the cord. He says he has never yet found it necessary or advisable to excise the veins of the cord. Occasionally he has not transplanted the cord in children, and under certain circumstances has not transplanted it in adults. He considers it of comparatively little importance whether the cord is or is not transplanted. He says that he is more and more inclined not to transplant it. He has utilized the fascia of the rectus abdominis a few times to re-enforce the abdominal wall above the inner end of Poupart's ligament, as illustrated by Halsted, but the elaborate method of suture used by Halsted he considers unnecessary, except in unusual cases. After operation by his method the patient is in bed two weeks, on a bed-rest the third week and out of bed the fourth week. A bandage is worn for one month, after being up and about, for the comfort it affords. The operation is described in detail.

48. **Matas Operation for Aneurism.**—Gessner reports the case of a negro, aged 32, suffering from an aneurism of the right popliteal artery, involving the middle and lower portions of that vessel. The tumor was five inches in the long axis of the limb, by four and a quarter inches transversely. He gave a history of syphilis four years before with one year's treatment. The aneurism was treated after the method advocated by Matas, slightly modified to the extent that the walls of the aneurismal sac were brought together directly instead of being turned in on themselves after the method of Neuber. The operation proved successful.

Interstate Medical Journal, St. Louis.

December.

51 German Medical Exhibit at World's Fair. Bacteriology and Experimental Therapeutics. A. Wassermann, Berlin.
52 American Pathologic Exhibit at World's Fair. W. T. Eckley, Chicago.
53 Surgical Lessons from the St. Louis Exposition. Willard Bartlett, St. Louis.
54 The German Hygienic Exhibit at World's Fair. Dr. Breger, Berlin.
55 Remarks on the German Exhibit at World's Fair of Methods to Prevent Infectious Diseases. Carl Fisch, St. Louis.
56 The Fight Against Tuberculosis at the Louisiana Purchase Exposition. Albert E. Taussig, St. Louis.
57 Radiography and Roentgen Apparatus at World's Fair. Bockenheimer, Berlin.
58 "Moulagen" Reproduction of Disease in Plaster of Paris and in Wax Models at World's Fair. M. F. Engman, St. Louis.

Canadian Journal of Medicine and Surgery, Toronto.

January.

59 Treatment of Lupus Vulgaris by Phototherapy, Radiotherapy and Otherwise. Charles R. Dickson, Toronto.
60 Case of Malignant Endocarditis in a Child. W. H. Pepler, Toronto.
61 Coughs and Colds. William F. Waugh, Chicago.

California State Journal of Medicine, San Francisco.

January.

62 Prevention of Tuberculosis. George H. Evans, San Francisco.
63 Diagnosis and Management of Transverse Presentation in the Later Months of Pregnancy. Charlotte J. Baker, San Diego.
64 Second and Fourth Positions of the Vertex. Henry Gibbons, Jr., San Francisco.
65 Appendicitis. Some Points in Its Diagnosis and Treatment from the View-point That Its Cause Is a Strangulation Produced by Distention Behind a Ball-valve. C. Van Zwalenburg, Riverside.
66 Myocarditis, with Special Reference to Disordered Metabolism. (Continued.) W. W. Kerr, San Francisco.
67 Chronic Otorrhea as Viewed by the Life Insurance Companies and the Medical Recruiting Officer. A. Barkan, San Francisco.
68 The Surgical Treatment of Chronic Nephritis. J. Henry Barbat, San Francisco.
69 Unity of the Medical Profession. Edward Ulrich, San Jose.
70 Odor Humane. Charles Anderson, Santa Barbara.
71 Use of the Phorometer in the Centering and Decentering of Glasses. Louis C. Deane, San Francisco.

International Journal of Surgery, New York.

January.

72 Practical Gynecology. W. A. B. Sellman, Baltimore.
73 Relation of Deep Linear Stricture of Large Caliber to Disturbances of Micturition and Recurrent Posterior Urethral Inflammation. G. F. Lydston, Chicago.
74 Essential Remedies in Emergency Surgery. W. C. Abbott, Chicago.
75 Practical Treatment of Diseases of the Eye. T. Cooke, Jr., Baltimore.
76 The Mastoid Operation in Infants and Children. H. Jerecky, New York City.

Journal of the Michigan State Medical Society, Detroit.

January.

77 Ascites and Pelvic Disease. R. Peterson, Ann Arbor.
78 Treatment of Compound Fractures. A. I. Lawbaugh, Calumet.
79 Renal Hematuria of Unexplained Origin; Cessation After Nephrotomy. B. R. Schenck, Detroit.
80 Chronic Proctitis and Sigmoiditis. W. L. Dickinson, Saginaw.
81 Myelitis Complicating Cancer of the Breast; Report of a Case. F. B. Walker, Detroit.
82 Case of Recurrent Vomiting. C. H. Johnston, Grand Rapids.

Maryland Medical Journal, Baltimore.

January.

83 The Midwife Problem and Its Legal Control. G. Steele, Cambridge.
84 Four Great Anglo-American Medical Discoveries. W. R. Stokes, Baltimore.

New Orleans Medical and Surgical Journal, New Orleans.

January.

85 Contract Medical Practice. B. A. Colomb, Union, La.

New York State Journal of Medicine, New York.

January.

86 An Atypical Case of Appendicitis. Presenting Some Unusual Features Found at the Operation. W. B. Reid, Rome, N. Y.
87 Involution Melancholia. Thomas J. Currie, Willard.

Colorado Medicine, Denver.

December.

88 Tympanites, Eructation, Merycism and Aerophagia. C. D. Spivak, Denver.
89 Narcotic Drug Addictions: Pathology, Treatment, Prognosis. Geo. E. Pettey, Memphis, Tenn.
90 Etiologic Aspects of Puerperal Fever. Charles B. Dyde, Greeley.

Medical Standard, Chicago.

January.

91 The Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
92 The Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. (Concluded.) Homer M. Thomas, Chicago.
93 Autointoxication and Its Treatment. (Concluded.) Heinrich Stern, New York.
94 Observations on the Medical Uses of the Continuous Galvanic Current. Daniel R. Brower, Chicago.

95 Instrumental Treatment of Chronic Gonorrhea. A. E. Fischkin, Chicago.

Journal of the Mississippi State Medical Association, Vicksburg.

January.

96 Microscopic Diagnosis of Gonorrhea. J. B. McElroy, Memphis, Tenn.
97 Scurvy. H. L. Sutherland, Rosedale.
98 Report of a Case of Streptococcus Infection of the Lungs. C. O. Buck, Lexington.
99 Suggestive Therapeutics. H. H. West, Gulfport.
100 Typhoid and Malarial Fevers. I. Edwards, Morton.
101 The Complications of Gonorrhea. S. Myers, Vicksburg.
102 Are We True to Each Other and Ourselves? H. X. Richardson, Dundee.

Journal of the Missouri State Medical Association, St. Louis.

January.

103 Treatment of Epilepsy. Given Campbell, St. Louis.
104 Scarlet Fever. Robert D. Haire, Clinton, Mo.
105 The Early Diagnosis of Pulmonary Tuberculosis. H. C. Shuttee, West Plains, Mo.

Journal of the Kansas Medical Society, Lawrence.

January.

106 Vascular Keratitis. A. C. Graves, Pittsburg, Kan.
107 Dipterous Parasites of the Intestine. F. E. Schenck, Burlingame.
108 Physiologic Action of X-ray. E. M. Brockett, Topeka.
109 The X ray. Ida C. Barnes, Topeka.
110 Methods of Detecting Bacillus Tuberculosis in Sputum in Doubtful Cases. Charles M. Gibson, Pittsburg, Kan.

Louisville Monthly Journal of Medicine and Surgery.

January.

111 The Operative Treatment of Hydrocephalus. A. M. Cartledge, Louisville.
112 Orbital Cellulitis, Frontal Sinus Disease, Abscess of Brain—Death. S. G. Dabney, Louisville.
113 Foreign Bodies in the Cornea. Dudley S. Reynolds, Louisville.
114 Hepatitis. D. L. Field, Jeffersonville, Ind.

Journal of Advanced Therapeutics, New York.

January.

115 Some Aspects of Phototherapy. Charles S. Dickson, Toronto.
116 Remarks on High Frequency Currents and Their Therapeutic Action. Walter H. White, Boston.
117 Clinical and Experimental Effects of Electrical Currents of High Potential and Frequency. (Continued.) John H. Burch, Baldwinsville, N. Y.
118 Radiography. (Continued.) Herman Grad, New York.

Albany Medical Annals.

January.

119 The Scientific Method in Medicine. Richard M. Pearce, Albany.
120 Pyloric Stenosis in Infancy; Report of a Case; Gastroenterostomy; Recovery. Henry L. K. Shaw and Arthur W. Elting, Albany.

Indiana Medical Journal, Indianapolis.

January.

121 Cerumen. Fletcher Hodges, Indianapolis.

Kansas City Medical Index-Lancet.

January.

122 Ectopic Pregnancy—A Case Report. H. C. Crowell, Kansas City.
123 Prosthetic Surgery, with Report of a Case, Illustrative. Flavel B. Tiffany, Kansas City.
124 Rectal Valves. J. M. Frankenburger, Kansas City.
125 Bright's Disease. J. McB. Johnson, West Plains, Mo.

Memphis Medical Monthly.

January.

126 Significance of Tube Casts in the Urine. William D. Burns, Memphis.
127 Observations on Abdominal Surgery. E. E. Haynes, Memphis.
128 Some Medical Deductions. G. G. Buford, Memphis.
129 Facts and Fancies in Otology. Richmond McKinney, Memphis.
130 Vulnerable Points in the Human Abdomen. E. M. Holder, Memphis.
131 Shock. Battle Malone, Memphis.
132 Meningitis of Otitic Origin—Recovery. Report of Case. J. D. Hopper, Jackson, Tenn.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

January 7.

1 Pains of Tabes. Wm. R. Gowers.
2 Soft Fibroma of the Larynx and Neck Removed by External Operation Without Opening the Cavity of the Larynx. Felix Semon.
3 Some Thoughts on Pleurisy. G. A. Gibson.
4 *A New Blood Fluke of Man. John Catto.
5 Nature of the Follicle Cells of the Mammalian Ovary. V. Chastel de Boinbille.
6 *Ambidexterity. N. B. Harman.
7 *Case of Cutaneous Anthrax Successfully Treated by Sclavo's Serum. C. B. Lockwood and F. W. Andrewes.
8 *Value of Nitroglycerin in Surgery. Frank Elvy.

4. **A New Blood Fluke.**—When Catto was quarantine officer at Singapore cholera broke out on a passenger ship from China. Some 400 coolies were quarantined. Among them was a Chinaman who presumably had never been away from China before. He died after three days' illness. During life it was found that the right lobe of the liver extended two fingerbreadths below the costal arch. The left lobe was a handbreadth below the sternum, and its percussion dullness merged into the splenic. The spleen was palpable one inch from the iliac crest, and its notch was in line with the anterior axillary fold. The autopsy was held an hour and a half after death. The adipose tissue throughout the body was a prominent feature. The appearance of the peritoneum suggested repeated attacks of peritonitis. The appendices epiploicæ were thickened and in some places matted together. The rectovesical pouch was almost obliterated. Encasing the large intestine was a coat of fat, most marked at the mesenteric attachment. The mesenteric tissues were all thickened and loaded with fat. The liver was uniformly enlarged. Its surfaces were markedly nodular, its borders sharp and irregular, the whole presenting the appearance of a very coarse cirrhosis. Its consistence was greatly increased, but its color was not appreciably altered. The coats of the gall bladder were thickened, and a layer of fat almost completely encased this viscus, which was distended with clear, mucoid, apple-jelly-like material, containing several minute black gallstones. The colon was much thickened. The mucous membrane was swollen, hyperemic and friable, presenting numerous small, circular, superficial erosions and patches of necrosis. The outer coats were very tough, almost cartilaginous, and showed no tendency to ulcerate. The rectum was three-quarters of an inch thick all around and was adherent to the bladder. It nearly filled the true pelvis. Where adhesions had formed, the bladder walls were thickened, but elsewhere it was healthy and nowhere was the vesical mucosa diseased. The sigmoid was uniformly thickened; in tracing the bowel upward the thickening became less marked and more patchy. The coats of the cecum and the appendix vermiformis were hypertrophied, the mucous membrane presenting small patches of ulceration and necrosis. The appendix was provided with a mesentery, and a distended lymphatic could be recognized running along its free surface. The liver and bowel cut gritty on section. The enlarged spleen was pigmented. The stomach, pancreas, suprarenals, kidneys, heart and lungs showed no signs of coarse disease. Sections of the liver and mesenteric lymph glands involved were found to contain numerous small oval bodies having a smooth, stout capsule. Sections of the intestine made later showed ova and filariform embryos in bundles in the mucosa and villi of the large intestine. Subsequently, in sections of the mesocolon, Catto found adult trematodes, male and female, in the blood vessels, the ova in the uterus of the female corresponding in every particular with the oval bodies found in the various viscera. The life-history of this new schistosome corresponds with that of other trematodes, especially the *S. hematobium*. It differs from the latter in that (1) the habitat of *S. hematobium* is said to be venous only, whereas the habitat of the new schistosome is mainly arterial; (2) the ova of *S. hematobium* affect mainly the urinary system and escape from their human host by this channel. In the new species the ova apparently affect exclusively the alimentary system, escaping by this route from their human host. The geographical distribution differs, for no case of bilharziosis has yet been met in China. Catto describes the new organism in detail.

6. **Ambidexterity.**—Harman considers the influences determining our general right-handedness and, incidentally, the persistence of cases of left-handedness. He also demonstrates the present existence of a very general degree of ambidexterity or, rather, co-ordination of function in the arms.

7. **Cutaneous Anthrax Treated by Sclavo's Serum.**—Lockwood and Andrewes report the case of a worker in horsehair suffering from malignant pustule of the cheek. Forty c.c. of Sclavo's serum were injected subcutaneously into the flank and abdomen, and no other treatment was adopted. The tem-

perature was then 102.4, and it rose in the evening to 103; the pulse was 92. During the night the temperature fell to 98.6. For the next two days the patient showed little improvement. The slough increased somewhat in size, and the surrounding edema became much more marked, at times almost closing the eye. The enlargement of the glands at the angle of the jaw increased considerably. There was also some swelling and redness of the fauces. The patient's general condition was good, and no further dose of the serum was given. Three days afterward there was distinct improvement. Seventeen days after the administration of the serum only a small granulating surface was left, which appeared likely to leave a scar scarcely more serious than that resulting from vaccination. The serum treatment thus proved completely successful.

8. **Nitroglycerin in Surgery.**—Elvy calls attention to the value of nitroglycerin in surgical cases, administered in doses of gr. 1/100. He advises its use in incipient senile gangrene and in all cases of impaired circulation in which contracted arterial walls are present. Even when the arteries seemed to be normal he has used the drug with benefit in local congestion.

The Lancet, London.

January 7.

9 *Recurrent Effusion Into the Knee-Joint After Injury. William H. Bennett.
10 Simple Method of Separating and Collecting the Urine Which Is Secreted by Each of the Two Kidneys. W. Bruce Clarke.
11 Pathology and Treatment of the Herniæ of Children and Their Relation to the Condition in the Adult. R. Hamilton Russell.
12 *Influence of Rainy Winds on Phthisis. William Gordon.
13 Cultivation of Trypanosoma Out of the Leishman-Donovan Body by the Method of Captain L. Rogers, I. M. S. G. C. Chatterjee.
14 Child Study and the Treatment of Paralysis in Children. Alfred A. Mumford.
15 Diet in Chronic Diseases. John Haddon.

9. **Recurrent Effusion into Knee Joint.**—Bennett considers 750 cases in which the effusion was recurrent, either spontaneously or after another injury, generally so slight that its effect on the normal joint probably would have been unnoticed. He divides his cases into two groups: 1, those entirely independent of any constitutional conditions (509), and 2, those influenced by constitutional conditions (241). In 428 cases in Group I the proportion of males to females was 16 to 1. The youngest patient seen was 9 years old and the oldest was 72. The left knee was concerned in considerably more than half the cases, while in 15 both sides were involved. With one exception, the trouble in the second knee followed that in the first after an interval. The symptoms arising from lesions of the outer side of the joint were less acute than those connected with defects on the inner side; it was also noticed that when the outer semilunar cartilage seemed at fault the symptoms of pain and locking were referred to the popliteal space in at least half the cases. In all such cases operated on recovery followed the removal of the obviously displaced anterior part of the semilunar cartilage. In the total number of 428 cases the symptoms pointed to the inner side of the joint being concerned in 304; to the outer side in 113, and to both sides in 11. Eighty patients were operated on (see Group 2). Fifty-six cases presented no other symptoms than mere recurrence of effusion without noticeable further injury. The affected knee occasionally swelled up without any apparent reason and without inconvenience beyond a slight feeling of weakness. The original effusion had, with two exceptions, come on after a twist or sprain of so slight a kind that it attracted little or no attention at the time. In 12 of these cases which were subjected to operation the internal semilunar cartilage was found to be detached and displaced in 5, the external in 1, and in 1 both cartilages were displaced. In the remaining 5 cases operated on nothing abnormal was detected. Of the 44 cases which were not operated on 30 were treated with complete success by massage, exercises, electricity, etc.; in the remaining 14 the ultimate effect of the same treatment is not known. Bennett says that in recurrent effusion into the knee-joint after injury, independent of constitutional conditions, when the usual methods of treatment had failed to effect a cure, exploratory operation is indicated on the grounds of the probability of internal derangement existing and that extensive displacement of one or even both semilunar cartilages may take place without the recurrence of any of the symptoms which are commonly regarded as characteristic of the lesion. In 21 cases loose bodies were found in the joint. The injury in each case was severe and was followed by excessive immediate swelling. In 14 cases operated on a single fibrous loose body was found in each, the smallest being of the size of a horse-bean and the largest of the size of a cherry. In one of the two remaining cases two oval bodies were found; in the other it was evident that the body had been broken off the edge of the articular surface of the femur. Generally speaking, the larger the body the less acute were the symptoms, although the attacks appeared to be more frequent. Only 4 cases of genu valgum were met with in the series. The injury in all cases was indirect, and in each a rapid increase in the deformity followed. In the second group of cases the existence of a constitutional dyscrasia exercised a considerable influence (1) in leading to the occurrence of symptoms from very slight causes and (2) in rendering recovery difficult or impossible unless the constitutional conditions are treated or, at all events, taken into account. In 107 of the 241 cases comprising Group 2, a diagnosis of osteoarthritis was made. In about 50 per cent. the diagnosis was only arrived at with certainty after repeated recurrence of effusion had been followed by some characteristic sign of articular change. The initial injury was invariably slight and generally indirect. In only two cases was a loose body felt before operation; in the remainder attacks of acute pain led to operative investigation: in all the cases explored the loose bodies were found and removed through a longitudinal incision at the inner side of the joint. Males were affected largely in excess of females (4 to 1), the right knee being concerned more frequently than the left. In the treatment of these cases nothing seemed to have more than a palliative effect, excepting the radiant heat bath, massage and electric vibration, which in 23 cases of comparatively recent origin appeared to effect an actual cure. In 30 cases rheumatism and gout acted as underlying causes. In the rheumatic cases a cure was effected, as a rule, by the usual constitutional treatment combined with massage. Operations were performed for the relief of acute pain due to tension; incision appeared to possess no advantage over aspiration, while the healing of the wound after incision was slow. Forty-two cases gave a history of syphilis, the longest period between the original infection and the injury causing the effusion into the knee was 28 years; the shortest period was 3 years. The syphilis in all cases appeared to have been cured. The injury was direct and, as a rule, slight. The right knee was affected more often than the left. In no case was permanent benefit derived until a course of antisyphilitic treatment was adopted. Gonorrheal rheumatism was a factor in 28 cases, malaria in 18, and hemophilia in 3. In 13 cases there was a passive effusion into the joint, such as is prone to occur in young girls during adolescence, if the menstrual arrangements are irregular and, especially, if they are delayed in their onset.

12. **Rainy Winds and Phthisis.**—Gordon finds on investigation that strong rainy winds appear to be remarkably associated with increased prevalence of phthisis, while absence of such winds seems to correspond strikingly with rarity of phthisis.

Bulletin de l'Académie de Medécine, Paris.

Last indexed page 165.

16 (Year LXVIII, No. 41, December 13.) Report of the Distribution of Prizes. Particulars of the Prizes Offered for 1905, 1906 and 1907. About 40 open to the competition of the world. See THE JOURNAL of January 14, page 135.
17 (No. 42.) *Le perborate de soude. G. F. Jaubert.
18 (No. 43.) Alcoholisme, tuberculose, syphilis. Proposition de réforme des statistiques mortuaires officielles. C. Ferre

17. **Hydrogen Dioxid in Form of a Stable Powder: Sodium Perborate.**—Jaubert announces the production of a powder which, dissolved in water, generates pure hydrogen dioxid. The powder is obtained by the action of boracic acid on sodium peroxid, and he proposes to call it "sodium perborate." The peroxid of hydrogen generated when this powder is di

solved in water is chemically pure, and its action is reinforced by the antiseptic properties of the sodium borate. Two pounds of the sodium perborate contain nearly 80 liters of active oxygen. The powder keeps perfectly and can be applied dry to wounds, cavities, etc., the nascent oxygen escaping as it comes in contact with the secretions, or it can be dissolved and thus produce a fresh and potent supply of hydrogen dioxid as required. The perborates of zinc, strontium and calcium can be made in the same way. Robin supplemented this communication with a reference to his suggestion that hydrogen dioxid be used for the water of crystallization, mentioned in these columns on page 83 of the last volume, with reiteration of the importance of the nascent state for the efficacy of drugs.

Revue de Gynécologie, Paris.

Last indexed XLIII, page 1731.

19 (VIII, No. 5, September-October.) *Périvaginite phlegmoneuse disséquante. G. Acconci (Florence).
20 De la jéjunostomie en Y dans la gastrite ulcéreuse grave. A. Monprofit (Angers).
21 *Prophylaxie de la récidive hydatique post-opératoire. A. Martin and F. Dévé (Rouen).
22 *Perforations spontanées de la vésicule biliaire calculeuse dans la cavité péritoneale libre. A. Hallet (Liège).

19. **Dissecting Phlegmonous Perivaginitis.**—Acconci reviews 29 cases in the literature and describes one personally observed. The patient was a healthy iii-para of 29, who was taken sick with evening chills and fever, intense headache, cough and blood-stained sputa. A month later there was a fetid discharge from the vagina with protrusion of what appeared to be a cancerous growth, projecting for from 6 to 7 cm. The fever became higher, the chills more severe, with subdelirium and profound prostration suggesting the typhoid state. This continued for a few days, when suddenly the entire mucous lining of the vagina came away in one piece. After the expulsion of the mass formed by the detached vaginal mucosa the patient rapidly recovered, except for hematometra and two fistulæ, which were cured by an operation later. The affection was evidently primary. The vast perivaginal infiltration did not involve the peritoneum. Only 5 of the cases on record terminated fatally, one probably from pyemia, the others from resulting complications. If diagnosed in time, the perivaginal infiltration might be drained away by scarifications or by incision. This has been done in a few cases and the vagina saved. If seen too late for this, measures to prevent strictures or to cure the consequences are all that can be done.

21. **Prophylaxis of Postoperative Recurrence of Hydatid Cysts.**—Injection of some fluid capable of killing the echinococci before attempting the extirpation of the cyst is a most important means to prevent recurrence later. Its efficacy is confirmed by the experimental tests reported.

22. **Perforation of Gall Bladder into Abdominal Cavity.**—Eleven patients recovered out of 15 operated on after spontaneous perforation of the gall bladder containing stones. This list includes 2 recoveries in Hallet's experience. The conclusions of his monograph on the subject emphasize the importance of prompt operative treatment when cholelithiasis does not yield to medical measures. This is the only certain safeguard against the dangers of perforation later.

Semaine Médicale, Paris.

23 (XXV, No. 1, January 4.) *Comment il faut faire l'appareil de mal de Pott. Calot.

23. **How to Apply the Cast in Pott's Disease.**—Calot is in charge of the Berck-sur-mer children's sanatorium, and he asserts that the successful treatment of Pott's disease is merely a question of applying the cast properly. He describes in detail his simple and practicable method of applying the cast. The article is illustrated by 24 cuts. He reiterates that with casts prepared by this technic he is able to cure every case of the disease wherever its location, even when paralysis is present.

Berliner klinische Wochenschrift.

24 (XLII, No. 1, January 2.) *Zur Kenntnis des Lungen-Emphysems. J. Orth.
25 Urticaria (experimental study). J. Baum.
26 *Objective Heart Findings After Angina Pectoris.—Ueber objektiv [illegible] Veränderungen am Herzen, namentlich auch [illegible] Anfällen von Angina pectoris. W. K[illegible]
27 Zum the[illegible] Griserins. Schomburg.
28 Der Säuglings-Skorbut in Berlin (in infants). H. Neumann.
29 *Die Anwendung des Adrenalins in der chirurgischen Praxis. Hildebrandt.

24. **Origin of Emphysema.**—Orth has observed 2 cadavers in which the findings indicated that emphysematous degeneration had developed on a basis of congenital hypoplasia of the lung. One lung exhibited this condition with no traces of coal dust in one case, while the other lung was hypertrophied and contained coal dust and no traces of emphysema. He regards this absence of coal dust as conclusive that the lung had not participated in the breathing at any time. He thinks it probable that some injury of the lung tissue, reducing its resistance and elasticity, must precede the development of emphysema.

26. **Objective Heart Findings After Angina Pectoris.**—Kernig has long taught that angina pectoris is due to thrombotic and embolic processes in the coronary arteries, and that the coronary sclerosis is liable to induce foci of softening or infarct in the myocardium or to involve the pericardium in inflammation by allowing the passage of bacteria through the walls of the smaller vessels. The heart findings frequently confirm this assumption and impose the necessity for repose as the proper treatment of thrombosis and embolism. It is only in the severer forms of angina pectoris that such positive findings can be obtained, as a rule. He describes typical examples of such findings. In one group slight fever was noticed after the attack, with appreciable enlargement of the heart, both subsiding under complete repose. In one case the attack was followed by temperature of 37.5 C., with pulse of 84, 90 and 96, the heart found progressively broader after each attack. In another case there was dullness in the left second interspace, but this dullness was not apparent immediately after the attack, but developed in the course of the second day. The heart sounds were very loud in this interspace, close to the sternum, while they were very weak in the fifth interspace. No pericardial friction sounds were heard at any time. He accepts these findings as evidence that the left auricle had become enlarged. This enlargement has been experimentally established as an almost inevitable consequence of occlusion of the coronaries. Circumscribed dullness in the second left interspace, close to the edge of the sternum, is one of the most constant signs of mitral stenosis, according to his experience. The third group includes 5 cases in which acute pericarditis followed the day after the attack of angina pectoris. Huchard found 7 cases of recent pericarditis in his compilation of 185 cases of angina pectoris which came to dissection. The list included also 11 cases of chronic pericarditis and 14 of rupture of the heart. In 2 other cases in Kernig's experience the heart did not present any physical findings, but functional disturbances were manifest after the attack of angina pectoris, oliguria, edema, etc. They illustrate the transitional forms between the cases with positive findings and those in which the angina pectoris does not seem to be followed by any disturbances. In 9 cases published by Pawinski an attack of angina pectoris had preceded the pericarditis, and yet he ascribes the angina to neuritis of the cardiac plexus, although no other evidences of such neuritis were forthcoming. Kernig is convinced that he has saved many patients from sudden death by ordering absolute rest in bed for days or weeks after a severe attack of angina pectoris, when the objective findings suggested the possibility of impending trouble.

29. **Adrenalin in Surgery.**—Hildebrandt reviews the history of adrenalin and extols its advantages for the surgeon. Combined with cocain it insures anesthesia with very much smaller doses, while it prolongs the action of the anesthetic and reduces its toxicity. Subdural injection of cocain is fatal for the rat in a dose of .018 gm., while addition of adrenalin raises the lethal limit to .11 gm. Bier has announced that the addition of adrenalin robs spinal cocainization of all danger, but some fatalities have been reported from this technic. In one obstetric case Bier's directions were closely followed, but the

patient succumbed. König has frequently found adrenalin a great help in plastic operations on the urethra, to prevent the annoying bleeding from the bulb. Analgesia of the mucous membranes is readily attained in five minutes by dabbing the part with a 5 per cent. solution of cocain or beta eucain to which a few drops of 1 to 1,000 adrenalin have been added. To anesthetize the bladder 1 c.c. of suprarenin is added to a .1 or .2 per cent. solution of cocain, analgesia being complete in about fifteen minutes. The fluid must be withdrawn afterward. In operating on the skin or subjacent tissue, Schleich's infiltration method can be used, adding 10 drops of adrenalin to 50 c.c. of the fluid. A still better technic is to make a circle of injections of the fluid around the field of operation. This requires a little stronger concentration, about .05 to .1 per cent. solution of cocain or eucain, with from 5 to 10 drops of adrenalin to the 50 c.c. A circle of blisters is made around the field, at some little distance from it, and the canula is then inserted in the subcutis and the surrounding tissue infiltrated, thus enclosing the field in a complete ring. By this technic it is possible to resect the ribs without pain, infiltrating the subcutaneous cellular tissue and the musculature down to the pleura, in the interspace just above and below. A longer interval is required, however, when such extensive excision is contemplated. The larger, superficial nerves can be deadened in ten minutes by injecting across their course a few c.c. of a .2 per cent. cocain-adrenalin solution. There is danger of later necrosis of the tissues if strong concentrations of adrenalin are used. Gangrenous phlegmons have been known to occur after injection of a few drops of a 1 to 5,000 solution. After-hemorrhage is also possible, as its effect subsides, if in such strength that the lumen of large vessels is closed. Both of these evils are avoided when the circulation in the capillaries alone is interrupted. For this a dilution under 1 to 10,000 is sufficient.

Centralblatt für Chirurgie, Leipsic.

Last indexed page 77.

30 (XXXI, No. 49, December 10.) *Behandlung des tuberkulösen Ascites. Schömann.
31 *Die ambulante Behandlung der Oberschenkel-Frakturen (of femur). S. Kofmann (Odessa).
32 (No. 50.) *Large, Pointed Foreign Bodies in Upper Esophagus.—Zur Behandlung grosser spitzer Fremdkörper im Halsteile der Speiseröhre. W. Kramer (Glogau).
33 (No. 51.) *Ein neues Ureteren-Kystoskop für den Katheterismus eines oder beider Ureteren. A. Freudenberg (Berlin).
34 (No. 52.) Automatic, Hinged Extension Pulley.—Eine automatisch drehbare Extensionsrolle. A. Hofmann (Freiburg).

30. **Treatment of Tuberculous Ascites.**—Schömann used to treat tuberculous ascites by laparotomy in appropriate cases and found the results of the operation always gratifying. But the necessary narcosis and the long rest in bed afterward render it a serious intervention for debilitated patients, and he has found that the same or even better results are attained by mere puncture and *injection of a 1 to 5 per cent. glycerin* emulsion of iodoform. The slow withdrawal of the ascitic fluid does not harm the weakest patient, and the symptoms rapidly subside after injection into the free abdominal cavity of from 1 to 2 cg. of the emulsion, repeated in from four to eight days, increasing the concentration and dose. He has treated by this technic 7 girls from 2 to 19 years old, all out-patients, and all could be regarded as cured in the course of from three to ten weeks. In [illegible] cases the serous exudation did not recur, but the oldest patient required five injections and the others three or four. She presented an apical *infiltration* with evening temperature and night sweats. The fever vanished after the third injection, the night sweats ceased and the lung lesion healed. She has been in good health since the end of treatment in September, 1902. There were no indications of iodoform intoxication in any instance and no complications or inconveniences of any kind.

31. **Ambulant Treatment of Fractures of Femur.**—Kofmann applies to fractures of the femur the cast used by Lorenz for coxitis. It extends below the knee and is applied in deep narcosis. The foot is held a little distance above the ground by side irons fastened in the cast with a crosspiece below the sole. He keeps a number of these irons constantly on hand, with an assortment of wooden sandals with soles and heels about two inches thick. One of these sandals is tied over the patient's shoe on the sound side. Thus equipped, the patient is able to walk about by the second day and is dismissed from the hospital by the third. In five or six weeks he returns to have the cast removed. In every instance the fracture has been found to be healed perfectly without the slightest deformity of the limb. In a few cases hemorrhage prevented the immediate application of the cast. He applied two sacks of sand on each side of the fractured limb. Their constant pressure soothed the pain and arrested further hemorrhage; the cast was then applied as usual. If the tissues appear too much compromised to be enclosed in the cast, he leaves an opening in the cast over this part for supervision of the healing processes.

32. **Large Pointed Foreign Bodies in Upper Esophagus.**—Kramer was able to accomplish the removal of a plate of false teeth which had lodged in the esophagus, without opening the latter. The corner of the plate had caught in the mucosa and all efforts to dislodge it had proved unsuccessful. He exposed the esophagus through an incision about 9 cm. long on the left side of the neck. The point of the plate could be readily palpated through the wall, and by manipulations through the wound with two fingers of the right hand and pressure with the left hand on the right side of the neck, he was able to dislodge the plate. The patient's retching then brought the plate up into the throat, whence it was readily extracted through the mouth. In the second case there was no effort at retching. When the plate was once dislodged by the manipulations it was extracted with a long, curving pair of forceps. The latest compilation of cases of foreign bodies in the esophagus (Balacescu) states that 69 out of the total 326 cases terminated fatally.

33. **A New Cystoscope.**—Freudenberg calls attention to two features which, he thinks, commend his cystoscope. The lamp and lens are on the convex side of the shaft, which has many advantages. The other new feature is that the optical part can be removed and with it the dividing wall between the optical part and the rest of the interior. Three illustrations show the details of the instrument.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 253.

35 (XXVIII, No. 50, December 17.) *Injuries of Uterus and Rupture.—Uterusverletzungen und Schwangerschaftsruptur. K. Baisch (Tübingen).
36 Zur Kasuistik der Mesenterial-Cysten. W. Haas.
37 Ulcus rotundum simplex vaginæ. H. Thomson (Odessa).
37½ Ueber einen operativ geheilten Fall von ausgetragener Extra-uterin-Gravidität (at term). L. v. Lingen.
38 (No. 51.) *Early Fetal Heart Sounds.—Zur Hörbarkeit der Herztöne im vierten und fünften Schwangerschaftsmonat. O. Sarwey.
39 *Zur Behandlung der klimakterischen Bluntungen (hemorrhages). A. H. Queisner.
40 *Der Gebrauch des galvanischen Stromes mit Kolpeuryse als Behandlungsmethode der chronischen Inversionen (des Uterus). J. v. Jaworski.
41 *Minor Points in Antisepsis.—Antiseptische Kleinigkeiten. O. Wille (Braunschweig).
42 (No. 52.) Ein neues Cystoscop-Stativ (standard). O. Polano.
43 Ueber Inversio uteri totalis. R. Wanner. Two cases.
44 Beitrag zur Histo- und Pathogenese des Chorionepithelioma malignum. T. Burdzinsky (St. Petersburg).
45 *New Principles and Instrument for Measurement of Pelvis.—Eine neue Theorie über Beckenmessung und die Beschreibung eines neuen Pelvimeters. S. v. Gaszynski (Warsaw).

35. **Injury of the Uterus and Rupture During Pregnancy.**—Baisch thinks that the weak spot resulting from some previous injury is responsible for the occurrence of rupture during pregnancy. He reports a case in which the wall of the uterus had been perforated with the finger during the extirpation of a placental polyp. The woman recovered without further intervention, but excessive hemorrhage from *placenta previa* at a delivery two years later compelled hysterectomy. At the spot of the former perforation there was a thin scar, free from muscle tissue. If rupture had occurred at this weak point the scar would probably have escaped attention.

38. **Early Diagnosis of Pregnancy.**—Sarwey's communication on the possibility of detecting the fetal heart sounds long before the time accepted as possible in the text-books, was summarized in The Journal, on page 1425 of the last volume.

He here describes 2 additional cases, which bring the number to 14, in which he was able to diagnose the pregnancy before the eighteenth week. The auscultation has to be perseveringly kept up, with all the precautions enumerated, the bladder completely emptied. In one case auscultation of the heart sounds at the sixth month revealed the existence of twins and established further that the trauma of birth is able to affect the heart to some degree.

39. **Treatment of Climacteric Hemorrhages.**—Queisner has cured 2 cases of climacteric hemorrhage, rebellious to all other measures, by slitting the lower segment of the uterus and suturing the two halves to the freshened roof of the anterior vagina. This allowed easy access to its entire interior and the mucosa was then cauterized with the actual cautery, with the complete arrest of the hemorrhages. This operation is less radical than hysterectomy, and answers the purpose fully as well in these cases. The patients were kept in bed only for four days.

40. **Galvanism as Supplement to Colpeurynter in Treatment of Chronic Inversion.**—Jaworski combines the electrode with the colpeurynter, the tip of the cathode terminating in a bag filled with water, the whole covered with a square of gauze. He gives illustrations of the instrument and relates its successful application in an old, inveterate case of inversion.

41. **Minor Points in Antisepsis.**—The fluid in which Wille keeps his instruments is water containing 1.5 per cent. borax, 3 per cent. carbolic acid and 2 per cent. formalin. The borax prevents rusting, the carbolic acid disinfects, and the formalin disguises the odor of the latter and probably enhances its antiseptic action. Rubber and metal instruments, syringes and brushes, keep perfectly in this fluid and are ready for use at any moment. The receptacle can be of enameled iron, tin or glass. He soaps and rinses the articles after using before replacing them in the fluid. Four years' experience with this fluid have fully established that this antisepsis is all that is necessary. For boiling instruments he uses .5 per cent. borax, wrapping the instruments in a cloth fastened with safety pins. He lifts the package out of the boiling water with bulldog forceps and hangs the package with the same forceps over a nail which projects far from the wall, where the contents dry out, or the package can be wrapped wet in parchment paper to be taken out of the house. After using, they are merely cleansed from blood and wrapped up, ready to be boiled again, thus saving much time. For convenience in wrapping he has his sounds made no longer than the curette, and the speculum is also a third shorter than usual. He keeps his basins in a wooden tub, like a butter tub, in a solution of sublimate. The basins are all of the same size so they fit together. The sublimate solution, with equal parts of salt, does not deteriorate in wood, as in an enameled vessel. For a lubricant, he has discarded oil, vaselin and soap, and uses a jelly made from Irish moss which has exactly the right consistency and is a superior lubricant, while the antiseptics retain their potency in it, as it is made with water. Its greatest advantage, however, is that it washes off immediately without leaving a trace. He keeps it in a wide-mouthed jar in which he can readily insert his hand: it usually has a little salicylic acid or stronger antiseptic incorporated with it.

45. **Pelvimeter on New Principle.**—The relations between the walls of the pelvis, their slant, the position of the symphysis in respect to the promontory and numerous other factors should enter into the measurement of the pelvis from the obstetric standpoint. The new pelvimeter described is an attempt to take advantage of all the various factors which have been established by anatomic-pathologic research. Not a single measurement, but the mutual relations between the various measurements form the criterion. The details of the pelvimeter constructed on these principles are shown in four illustrations. The longitudinal diameter of the symphysis is the base for the calculations. They are simple and when transferred to paper form a complete diagram of the entire interior of the pelvis, obtained without inconvenience to examiner or subject.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

46 (XXX, No. 49, December 1.) *Bacteriology and Puerperal Fever.—Die Erfolge der bacteriologischen Forschung in [illegible]ehandlung des Kindbettfiebers.
47. *Ue[illegible] P. Grawitz (Greifswald).
48 *Behandlung der Leukämie mit Röntgen-Strahlen. Joachim und Kurpjuweit (Königsberg).
49 *Wearing Out of the Nerves.—Die Aufbrauchkrankheiten des Nerven-Systems. L. Edinger (Frankfurt a. M.).
50 *Ueber den Typus A des Bacterium paratyphi; Typhus Serum Erfahrungen, und zur Mischinfektions-Frage. H. Kayser (Strasburg).
51 *To Enhance Resisting Powers.—Experimentelle Untersuchungen zur Frage der Erhöhung der natürlichen Resistenz des Peritoneums gegen operative Infektionen. L. Borchardt.
52 *Intraperitoneale Serum- und Kochsalzlösung-Injektionen zur Verhütung operativer Infektionen des Bauchfells (of peri-[illegible]idt (Dresden).
53 [illegible] Laktophenin-Icterus. S. Laache.
54 [illegible]ysiologische und pathologische Albumi-[illegible]
55 [illegible] Gummihandschühe (rubber gloves). F. Ahlfeld.
56 Verwendung der Gummihandschühe bei der manuellen Placentarlösung nebst Bemerkungen über die Ursache der Retentio placentæ (rubber gloves). Mende.
57 Zur Frage der gemischten Hedonal-Chloroform-Narkose. E. D. Podhoretzki.
58 Diagnose und Behandlung der Kieferhöhleneiterung (maxillary sinusitis). E. P. Friedrich (Kiel).
59 Tests of Hearing.—Prüfung der Gehörfunktion. Ostmann.
60 Extension Bed for Infants with Fractured Femur.—Streckbett für Säuglinge mit Oberschenkelbruch. H. Landau.
61 Durchdringung der Larven des Ankylostomum duodenale durch die Haut (penetration through skin). Lambinet.

46. **Prevention and Treatment of Puerperal Fever.**—Döderlein expatiates on the great value of the aid afforded by bacteriology in the prophylaxis of puerperal fever and in its treatment. About two-thirds of all cases are due to pyogenic germs, we have learned, but there is a large number caused by the putrefaction bacteria alone. He thus distinguishes between the septic and what he calls the sapric puerperal fevers from the Greek term *sapros*, rotten. Prophylaxis is required along different lines for these two varieties. They are very rarely associated. Septic infection is prevented by preventing the access of foreign pathogenic germs, the same as in surgical work. Sapric intoxication is prevented by removing the conditions which the putrefaction bacteria require for their development. These ubiquitous and unavoidable germs are unable to proliferate in an unfavorable environment. The more natural and complete the detachment and expulsion of the placenta the less foreign matter will remain in the uterus to attract bacteria. All measures which require long retention of foreign bodies in the uterus, such as gauze, tampons, laminaria, bougies, metreurynter, etc., afford particularly favorable conditions for the growth of these bacteria and are, therefore, liable to be more dangerous than more forcible measures which are of briefer duration. Puerperal affections will become less frequent the less artificial assistance is rendered and the more the natural defensive and protective processes are allowed to work undisturbed. The primary focus of both septic and sapric puerperal affections is generally in the uterus. Careful supervision of the temperature and prompt disinfection of the focus at the first warning rise will frequently abort the process in its inception, especially if of the sapric variety with fetid lochia. He prefers for the disinfectant a 3 per cent. alcoholic solution of lysoform, and thinks that antistreptococcus serum is indispensable in severe septic cases not too far advanced. Operative treatment of puerperal peritonitis has never proved successful. In selected cases of severe, localized infection of the uterus extirpation of the organ may save an otherwise doomed life. The Trendelenburg technic of resection of septic thrombosed vessels will only exceptionally find application.

47. **Multiple Primary Tumors.**—Grawitz has always contended that it is highly improbable that a single cause can be responsible for all malignant tumors. A parasitic etiology is incompatible with the clinical experiences of multiple primary tumors in the same subject. Even in case of generalized carcinosis or sarcomatosis, in which the blood would be swarming with parasites—if such existed—yet multiple primary tumors are rarely encountered and when found they usually bear the characteristics of metastases, due to deportation of cells and not to the settling of parasites. He recently discovered at the autopsy of a woman of 67 several benign myomas in the

uterus, a malignant sarcoma of the broad ligament with metastases, and a cancer in the small intestine, likewise with metastases. The latter were located in the ovaries, and he emphasizes the importance of search for a primary tumor in the stomach or small intestine in case of bilateral malignant disease of the ovaries. The woman had been in an insane asylum for nearly thirty years, but her physical health had been good until the last year. The microscopic findings speak convincingly, Grawitz thinks, against any parasitic etiology for the tumors observed.

48. Roentgen Treatment of Leukemia.—In the 2 cases reported the leukemic features of the blood and the leukemic enlargement of the spleen and of the glands all rapidly returned to normal under the influence of the *x*-rays. The general health showed marked improvement in the first case, one of myelemia. The other was a case of chronic lymphemia. A patient with splenic anemia treated with the same technic was not influenced. Hard tubes are best adapted for treatment of leukemia, and it might be well to protect the exposed area with a thin sheet of metal foil to filter out any soft rays that may be present.

49. Wear and Tear of the Nerves Without Normal Repair.—In this second article Edinger discusses the abnormal wearing out of the peripheral nervous system without normal repair. The wearing out may be due to relative or absolute excessive functioning or to the influence of some toxin or to a combination of both factors. The resulting neuritis in these cases is a painless affection, sometimes not giving rise to any symptoms or, at most, to a little paresthesia or motor weakness. There is no need to distinguish between the neuritis of old age, of diabetes, infectious diseases or of pregnancy. All belong, Edinger asserts, in this category of wear and tear of the nerves without normal repair, entailing a painless neuritis. Alcohol, lead and arsenic do not attack the nerves directly, but they weaken them so that wear and tear use them up more quickly. No case of acute paralysis after lead, alcohol or arsenic poisoning is on record. In the course of time a hard drinker is liable to present such a using up of so many nerves that the clinical picture of tabes, with or without muscular atrophy, is apt to result, or else a condition resembling progressive neurotic atrophy. This peripheral pseudotabes has many points in common with true tabes. It is due to the wearing out of nerves injured by alcohol, while in true tabes the abnormal wearing out of the nerves is due to their having been injured by the syphilitic virus.

50. Mixed Typhoid and Paratyphoid Infection.—Kayser writes from the "typhoid station" established at Strasburg to help in carrying out the Koch method of combating typhoid by eradicating each focus. He states that the paratyphoid bacterium, type A has been found in pure cultures in 3 cases and type B in 8 cases during the last year. In 15 cases the presumptive diagnosis of typhoid was based solely on the positive findings of 1 to 100 or higher in the agglutination test with the paratyphoid bacillus, type A. Suitable prophylactic measures were at once instituted, although the clinical findings were dubious and all other tests were negative. The course of the disease confirmed the diagnosis of typhoid in every instance except one case, in which the disease proved to be paratyphoid. The specificity of the highest agglutination value is not absolutely reliable unless corroborated by corresponding tests on animals. In typhoid or allied diseases the serum of the patient is liable to be capable of agglutinating not only the bacteria causing the disease, but also others resembling it, the values for the latter sometimes being higher even than those for the specific microbe.

51-52. To Enhance Resisting Power of Peritoneum Before Operations.—Borchardt has been long engaged in study of this problem and now announces that it is possible to materially enhance the resistance of the peritoneum by preliminary injection of physiologic salt solution. He commenced his researches independently of Mikulicz. (See The Journal, xliii, page 1733.) They have established that a preliminary injection of nucleinic acid, horse serum or physiologic salt solution is able to increase the resisting powers of the peritoneum and thus render conditions more favorable for the surgeon. He found that salt solution is fully as effectual as nucleinic acid, and consequently prefers it to the more toxic acid. This preliminary treatment proved most effectual with an interval of forty-eight hours before the operation. The increase noted in the resisting powers persisted for about four days. His results confirm those obtained by Petit, mentioned in these columns, page 1731, of the last volume.

Schmidt writes from the same clinic to report 5 cases in which the foregoing experimental findings were practically applied in the clinic. The preliminary injection of horse serum and salt solution evidently causes a slight irritation of the peritoneum which temporarily enhances its resisting powers In one of the cases related the abdominal wound after the gastroenterostomy separated the seventh day and the bowels protruded, but there was no inflammation and the wound healed without any evidences of reaction. He thinks it is possible that injection of serum or salt solution might be used in the treatment of morbid processes in the peritoneum. It seems to be already established, he concludes, that the dangers may be lessened by it in incipient appendicitis, annexitis, ulcers, etc., re-enforcing the natural resisting powers as an aid to other medical or surgical measures. He gives an illustration of a little instrument which he has devised for injecting the fluid without danger of injury to the viscera. It is in two parts, one resembling an apple corer, a short cylinder trocar, 1 to 1.25 cm. long, with a sharp, slanting, cutting edge and crossbar handle. The other part is a long, round-tipped sound, with a lumen of 2 mm. and openings near the tip. When the short trocar has been introduced through the abdominal wall, the tube is passed through it, and a hole is bored with the blunt tube through the parietal peritoneum, and the fluid allowed to flow through it. Numerous tests on the living subject and on the cadaver have demonstrated that there is no danger from the use of these instruments under normal conditions, but in case of adhesions there is a possibility that in detaching them some of the intestinal content might escape into the peritoneum. He injected always from 5 to 10 c.c. of horse serum in .9 per cent. salt solution (250-500 c.c.) He used this amount of fluid, fearing that a smaller quantity would not spread evenly over the peritoneum. The preliminary injection was generally made from seventeen to nineteen hours before the operation. When the abdomen was opened, part or the whole of the peritoneum was found more or less congested, but there was little free fluid. The leucocytes had increased to about double the previous figure and by the next day to four times.

54. Physiologic and Pathologic Albuminuria.—Senator presents arguments to sustain his assumption that the appearance of physiologic and the closely allied pathologic albuminurias is due to a predisposition which may be congenital or acquired. This predisposition may be the result of an abnormal constitution of various organs, either the kidneys, the digestive tract, the blood vessels or the blood itself.

Münchener medicinische Wochenschrift.

62 (LI, No. 51, December 20.) *Ueber Herz Bigeminie nach Digitalis-Gebrauch. C. J. Fauconnet.
63 Die Augensymptome bei der Myasthenie (eye symptoms). A. Bielschowsky.
64 *Further Research on Causes of Eclampsia.—Weitere Untersuchungen zur modernen Lehre der Eklampsie. E. Wormser und A. Labbardt.
65 Ein Fall von Situs inversus des Magens, des Duodenums und der Milz bei einem 63-jährigen, weiblichen Individuum. J. Halff.
66 Zur Landryschen Paralyse. J. Jul.
67 Akute Kompression der Cauda equina durch ein Projektil. Operation. Heilung. F. Engelmann.
68 Ueber Sanatogen. J. Hoppe.
69 Packing Dressings and Tampons Ready to Use.—Abgepasste gebrauchsfertige sterilisierte Verbandmaterialien in steril haltender Verpackung. L. Grunwald.
70 Leukozyten-Zählung und Früh Operation bei Epityphlitis. F. Berndt. (Commenced in No. 50.)
72 *Legislation Against Irregular Practices in Baden.—Gesetzliche Massnahmen gegen die Kurpfuscherei in Baden. O. Neustätter.

62. "Heart Bigeminus" After Administration of *Digitalis.*—Fauconnet describes a case diagnosed as recurring endocarditis and mitral insufficiency, in which great irregularity was in duced in the heart action by administration of moderate doses of digitalis. The tracings show the prompt effect of the digitalis in inducing "heart bigeminus," with pseudo-bradycardia. The apex beat indicated 84 systoles, with a 42 radial pulse. Review of the European literature shows that 22 authors have reported double heart beat after the use of digitalis in valvular affections. A number of others have observed it in infectious diseases and during convalescence, one in a case of nephritis, another in catarrhal icterus, one in epilepsy, and one in diphtheria. Three writers have reported it in a valvular affection without digitalis, and 2 without mention of the existing disease. Doll has also reported a case of double beat due to an aneurism in the heart. In the case described in the article the connection between the digitalis and the consequent "heart bigeminus" was strikingly apparent. Fauconnet suggests, in explanation, that the drug exerted its usual effect by inducing more powerful contractions of the heart muscle, filling the cavities better, but the anatomic condition in the heart in severe valvular affections causes this increased action of the heart to be ultimately unfavorable for the organism. The extra systole indicates a maximal contraction of all the muscular elements, while all this expenditure of energy is almost entirely wasted so far as the circulation is concerned. The effects observed have nothing in common with ordinary digitalis intoxication, but they indicate the immediate suspension of the drug. Death may result from disregard of the warning pulsus bigeminus. Salaghi published last July an account of experimental study of the influence of the bigeminal action of the heart on the general circulation. He demonstrated that the double heart action, associated with mitral insufficiency or stenosis, would have the effect—by purely physical laws—of further increasing the stasis in the pulmonary circulation.

64. **Further Research on Causes of Eclampsia.**—This article relates a series of experiments based on the theory of the deportation of villi and syncytiolysis, as connected with the etiology of eclampsia. The results were practically negative.

72. **New Regulations in Baden Against Irregular Practices.**—See news columns.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed XLIII, page 1666.

73 (XVIII, No. 4.) Der akute Gelenk-Rheumatismus und die intravenöse Salizyl-Behandlung. F. Mendel (Essen-Ruhr).
74 Neuere Behandlungs-Methoden des Heufiebers (of hay fever). E. Fink (Hamburg).
75 Ueber Fetron-Salbe (ointment). E. Saalfeld.
76 Zur diuretischen Wirkung des Theocins speziell bei akuter Nephritis. Hundt.
77 *Untersuchungen über subdurale Injektion von Adrenalin und Cocain. Zeigan.
78 Scrofula and Brine Baths.—Skrofulose und Solbad. Kabic.
79 Etiology of Tabes.—Ist für die Enstehung der Tabes die Syphilis oder die Anlage und ein sozialer Faktor massgebend? O. Rosenbach (Berlin). (Commenced in No. 3.)
80 Action of Mud Baths.—Wirkungen der Moorbäder. A. Loebel.

77. **Analgesia from Subdural Injection of Adrenalin.**—Zeigan found that complete anesthesia below the point was induced in animals by *subdural injection* of 1 mg. adrenalin in 1 c.c. of physiologic salt solution. When the same amount was injected in 5 c.c. of fluid, it spread to the medulla and brain and caused severe symptoms on their part. The anesthesia of the parts below the spot is as complete as when cocain is used, but it does not last longer than eight to twelve minutes. The effects observed indicate mere anemia, not intoxication of the nerve cells. The animals were all lively afterward.

Hospitalstidende, Copenhagen.

Last indexed XLII, page 1345.

81 (Year XLVII. Nos. 17-18.) *Mechanical Dilatation.—Nyere Metoder til Behandling af Födslens Udvidningsperiode. Muus (Leopold Meyer's clinic, Copenhagen).
82 (No. 19.) Syphilis corymbosa. K. Gron and J. Haavaldsen (Christiania). Four cases.
83 (No. 20.) *Excochleatio uteri. H. Kaarsberg.
84 (No. 21.) Om Difteri-Statistik. H. I. Bing and V. Ellermann.
85 (No. 22.) Pericarditisk Pseudo-Lever-Cirrhose og dens Behandling. K. Faber (Copenhagen).
86 Report of International Anti-Tuberculosis Conference. Copenhagen. May 26-29. 1904.
87 Treatment of Accidental Wounds in Private Practice.—Om Behandlingen af accidentelle Saar i privat Praxis. T. Schultz.
88 (No. 24.) Experiences with Hospital Infections.—Hospitalsinfektioner paa Blegdams-Hospitalet 1879-1903. Sörensen.
89 (No. 25.) *Fibromyoma uteri med Thrombophlebitis. R. Paulli.
90 (No. 26.) Autoinfection During Childbirth.—Om Selvinfektion under Fodslen. A. Johansen. (Commenced in No. 20.)
91 *Ett Tilfaelde af intermitterende Tyndtarms-Invagination. P. A. Fenger Just.

81. **Mechanical Dilatation.**—Muus states that Bossi's dilator had been applied at date of writing 35 times in Meyer's maternity, a larger experience than had been reported from any other clinic outside of Italy. There were 22 primiparæ, and in 7 the cervix was not obliterated, the os allowing the entrance only of a single finger. His experience has convinced him that the Bossi method is able to accomplish delivery rapidly and effectually without causing any appreciable lesions and without danger for the child. The latter can thus be removed from the influences (eclampsia, etc.) for which the rapid delivery is indicated. His impressions from the 15 cases of eclampsia were decidedly in favor of this method of dilatation. Eclampsia before 1890, when delivery was left to nature, gave a mortality of 20 per cent. The mortality during the last six years, in which delivery was hastened as soon as possible after commencement of the convulsions, has been less than 11 per cent. in 43 cases. In 20 in which delivery occurred unassisted 4 of the patients died. In 3 cases of placenta previa 2 patients were promptly and safely delivered by the Bossi method, but the third patient succumbed to pre-existing infection. Muus thinks that rigidity of the cervix is a very serious complication of delivery, and he now follows the rule that if the os remains closed, notwithstanding good labor pains, after the escape of the water, it is not wise to wait too long. Twelve hours should be the maximum expectancy, and the Bossi dilator will then be found more useful than any of the old-style instruments. Four patients with pyelonephritis and 3 with heart disease were smoothly and safely delivered by this means. One woman was admitted moribund and a living child was safely delivered. One of the cardiac patients presented cyanosis and edema, pulse 84, the findings suggesting a congenital valvular affection. As the symptoms were not pressing, nothing was done until labor commenced. Then the cervix was dilated with the Bossi dilator under ether from 2 to 11 cm. in fifteen minutes, and a living child extracted with forceps. The patient has been in good health since, better than for some years previously. Muus regards this case as one of those that best demonstrate the advantages of mechanical dilatation. Without it such demands would have been made on the woman's system in delivering her child that she could scarcely have survived, while with it the delivery was smoothly accomplished in less than half an hour.

83. **Examination of Uterine Scrapings.**—Kaarsberg emphasizes the importance of microscopic examination of the scrapings whenever the uterus is curetted for any cause. He quotes Landau to the effect that 99 out of every 100 women with postclimacteric hemorrhage have a cancer. Whenever curetting is done, the physician should be prepared for any eventual operation as in case of taxis of an incarcerated hernia.

89. **Fibromyoma Uteri, with Thrombophlebitis.**—Paulli describes a case of fibromyoma of the uterus with thrombophlebitis alternately in legs and arms. The patient was a woman of 46. She recovered under symptomatic treatment and has been in comparative health during the year since. He believes that a developing myoma is not only a local affection, but that the organism suffers generally, possibly with a tendency to a triad of symptoms, like the triad in exophthalmic goiter, in Addison's and in Bright's disease. The triad with myoma is the tumor in the uterus, a series of nervous symptoms—neurasthenic, neuralgic or mental—and a general vascular disturbance entailing a tendency to thrombophlebitis. It is impossible to say positively which element of this triad is the primary. An anatomic heart lesion was found in 40.8 per cent. of 71 cases of myoma at the Berlin Charité as reported in 1894. Kaarsberg found pigmented degeneration of the myocardium in 4 out of 8 myoma cadavers, 2 of the deaths being due to embolism in the pulmonary artery. Kessler of Dorpat found *myofibroma of the heart* in a patient who had succumbed the seventh day after extirpation of a myoma in the fundus weighing 56 pounds. He thinks that this coincidence of myofibrosis and myoma probably occurs frequently. *In* 3 out of 5 cases

of death from embolism of the pulmonary artery observed at the hospital in Paulli's charge the patients succumbed the second week after ablation of a myomatous uterus, the fatality coming like lightning from a clear sky. Two other myoma operations were followed by death, one from secondary hemorrhage with consecutive peritonitis and one from local peritonitis with ileus. The total mortality has been 5 in 83 myoma operations during the last five years. Embolism of the pulmonary artery was not observed, except in these 3 myoma cases, in the experience of 362 laparotomies. Rosthorn had one death from embolism in 66 abdominal radical operations for myoma; Michel, 2 in 586; Burckhardt, 7 in 236; Hofmeier, 3 from embolism and 1 from "heart stroke" in 223 laparotomies for myoma, and Czempin, 2 in 82, but Engstrom had no deaths from this cause in a mortality of 5 in 100 operations. In Paulli's 3 cases of fatal embolism, slight evening temperature had been noted. Other circumstances observed indicate, he thinks, that prophylactic elevation of the foot of the bed may not prove effectual, although its importance can not be overestimated for most cases; that the heart should be stimulated before the operation with digitalis, camphor or strychnin, and that ether, and not chloroform, should be used with saline infusion of a liter a day during the first few days, with nutrient enemata. It is extremely important that the intestinal peristalsis should be promoted to prevent tympany. The rectum should be rinsed out several times a day for this purpose.

91. **Recurrent Intussusception.**—In the case related a girl of 17 had been treated for symptoms of gastric ulcer, but without improvement. A laparotomy was then undertaken on the presumptive diagnosis of gallstones, but nothing was found to indicate lithiasis. After ten days of calm the symptoms recurred, suggesting ileus this time, until the discovery of a tumor corrected the diagnosis to invagination of the small intestine. The intussusception was reduced by a laparotomy and the intestine sutured to prevent recurrence. Again the invagination recurred, this time at a higher point, reduced by a third laparotomy with resection of a loop 7 cm. long. The patient has been in good health since.

Medicinskoe Obozryenie, Moscow.

Last indexed page 335.

92 (LXI, No. 1.) *K kazuistikye ostrago staphylo-mycoza. N. Bereznegovsky.
93 Case of Thrombosis of Sinus Transversus and Internal Jugular Vein, Secondary to Otitis Media; Recovery.—K kazuistikye tromboza poperetchnoi pazukhi i vnutrennei yaremnoi veny. A. M. Arkhinoff.
94 *K voprosu o hemophilii. V. A. Geyer.
95 **Hot Baths in Treatment of Epidemic Cerebrospinal Meningitis.*—Goryatchiya vanni pri letchenii epid. cerebrospin. meningita. V. M. Rozhansky.
96 *Technic for Differentiation of Tubercle and Smegma Bacilli.*—K voprosu ob otlitchitelnom raspoznavanii tub. bac. ot bac. smegmy. O. M. Nevyadomsky.
97 (No. 2.) *Favorable Action of Atropin in Two Cases of Hemoptysis.—2 slutchai udatchnago primyeneniya atrophina pri upornom krovokharkanye. W. O. Woltke.
98 O dyestvii formalina na parshu (formalin in favus). Scharzhinsky and Bogroff.
99 *Study of Red Corpuscles.—Ob izmyerenii obshago obema krasnikh tyeletz v krovi tchelovyeka pri normalykh i patologitcheskikh usloviyakh. E. V. Gote.
100 (No. 3.) *Gonorrheal Urethritis in Boys.*—O pereloinom uretritye maltchikov. A. P. Rudsky.
101 K voprosu ob etiologii vostotchnoi yazvy (parasitology of oriental sore). E. I. Martzinovsky and S. L. Bogroff.

92. **Acute Staphylomycosis.**—A girl of 10 succumbed in a few days to what was apparently an acute infectious osteomyelitis. Pure cultures of the staphylococcus aureus were derived from the exudates, tissues, etc., the case being best described as an acute metastatic staphylomycosis. The clinical and autopsy findings are given in detail, with a review of the literature on the subject, especially the Russian. The general conclusions seem to be that the mortality of staphylomycosis is high and that the further necrosis of the bones is not always arrested by surgical intervention.

94. **Hemophilia.**—Bobroff had occasion to operate on a young man whose knee was swollen and painful. A similar condition had been noted a few years before after a trauma, but had spontaneously subsided. The urine was occasionally blood-stained, without known cause, and the patient's brothers suffered also from swellings in the knees and hip joints. The hemorrhage was continuous, as the knee was incised, and the blood showed no signs of coagulating. Applications of 20 per cent. ferropyrin and liq. ferri sesquichlorid internally, with ergotin, failed to arrest the bleeding, as also compression of the femoral artery for twenty-four hours. The autopsy revealed no cause for the hemorrhage. Bobroff thinks that hemophilia is due to the composition of the blood itself, probably to an abnormal proportion of cytoglobin, a product of the destruction of the red corpuscles. Another cause may be the thinness of the walls of the arteries from defective development of the musculature in the blood vessels. The elastic fibers in the skin also show a defective development in these cases and thus fail to exert the normal pressure on the capillaries, while the lumen of the arteries is unable to contract. The majority of hemophilics are slight, with light hair, white and transparent skin, blue eyes and transparent teeth, although a few cases have been published of hemophilia in the brunette and even in the negro.

95. **Hot Baths in Treatment of Epidemic Cerebrospinal Meningitis.**—Fifty-one patients out of 62 were treated with the hot baths. They were given once or twice a day for from fifteen to twenty minutes each, the water at a temperature of 32 R. (104 F.). Ice was applied to the head during the bath. The benefits were purely symptomatic, but they helped to tide the patient past the dangerous phases. The general mortality in the 62 cases was 45 per cent., but among those treated with the hot baths it was only 33 per cent. and it was zero in the 4 cases in which treatment was instituted during the first three days. One died out of 6 treated the fourth day and 6 out of 8 in which treatment was commenced the fifth day. The total mortality was thus 10 per cent. in the first four days and 39 per cent. in the 41 in which treatment could not be instituted till later. Out of 50 patients treated in another pavilion in the same hospital during the same period, but without the hot baths, 40 succumbed, a mortality of 80 per cent.

97. **Atropin in Hemoptysis.**—In the 2 cases reported nothing was able to arrest the severe hemoptysis until atropin was injected subcutaneously, when the blood rapidly disappeared from the sputa. The doses were from .0002 to .0006 gm. of atropin, repeated on six consecutive days. One patient had been ineffectually treated with innumerable measures, including ergotin, hydrastis, morphin, liq. ferri sesquichlorid and terebinthin, before atropin was tried, the rebellious hemorrhages from the lungs threatening speedy dissolution.

99. **Red Corpuscles.**—Gote asserts that very characteristic and instructive findings can be obtained by study of the proportions between the number of red corpuscles and their mass, that is, the general content of the blood in red corpuscles. He uses the hematocrit, and tabulates the findings in a large number of cases of various diseases, as also in healthy subjects. To cite a few typical cases from his tables we note in a case of croupous pneumonia that the reds numbered 4,980,000; the hemoglobin, 90; the proportional content of reds was 41; the absolute content, 8.5. In a case of chlorosis the reds numbered 2,500,000; the hemoglobin, 37; the proportional content of reds was 17, and the absolute content, 6.8. In one of myxedema the reds numbered 3,730,000; the hemoglobin, 80; the proportional content, 44, and the absolute content, 11.8, while in one case of pernicious anemia the absolute content was 16.4, with 1,212,000 reds.

Revista de Medicina y Cirugia, Havana.

Last indexed page 168.

102 (VIII. No. 13.) *Apendice, appendicitis y apendicectomia. F. Dominguez Roldan.
103 (No. 14.) *Special Dangers Incurred by a Country from Its Proximity to Another Great Republic.*—Peligros especiales que corre un pais por su inmediata vecindad a alguna otra republica. F. Torralbas.

102. **Appendicectomy.**—A number of plates show the technic adopted by Roldan for seeking and removing the appendix. He remarks that it takes longer to describe the technic than to execute it, as he has frequently commenced the search for and completed the extraction of the appendix in fifty-five seconds. The incision is made according to Jalagier and is only long enough to introduce two fingers comfortably.

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Original Articles.

SYMPTOMATOLOGY, PATHOLOGY AND TREATMENT OF CHOREIFORM MOVEMENTS.*

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In discussing the subject of chorea and choreiform movements, I can not hope to present to you any very startling new facts, but possibly I may be able to bring forward some observations which may not be generally known.

Lees,[1] in a discussion on chorea before the British Medical Association in 1903, remarked that chorea is often the first of a series of rheumatic attacks, and said that Batten, in 115 cases of chorea, found that whereas the percentage of previous rheumatism was stated to be only 32.2 per cent., three years later so many patients had subsequently suffered from rheumatism that the percentage rose to 43.5, and three years later still it had risen to 53.2 per cent., so that the lapse of six years had increased the percentage by 21 per cent.

Lees said further that pain and swelling of joints, which alone constitute the ordinary idea of rheumatism, are slight and infrequent in the rheumatism of childhood, and the sole but conclusive manifestation may be a subcutaneous nodule, or a small patch of erythema, or a dilated heart with a soft mitral murmur. This seems to make the diagnosis of rheumatism very comprehensive.

Lees seems inclined to believe that chorea is caused by the diplococcus of rheumatism, and that chorea is cerebral rheumatism in the great majority of cases. Indeed, he goes so far as to say that every case of chorea, however mild, ought to be looked on as presumably rheumatic, and that many a mitral stenosis in later life, with its distressful years and its premature death, might have been averted if the practitioner who attended the case of slight chorea in childhood had treated it vigorously as rheumatic.

Chiefly on the authority of G. Sée,[2] at least in France, chorea has been regarded since 1850 as of rheumatic nature, and rheumatism has been supposed to precede it, accompany it, or follow it. Numerous observations have convinced Gilles de la Tourette, Charcot, and others that this relation does not exist, and it seems to me that this relationship has been much exaggerated. In most of my cases I am unable to establish it.

Sydenham's chorea, according to Gilles de la Tourette, does not begin after puberty, and in two of his cases, in which it began at the ages of 16 and 18, respectively, menstruation had not begun. This statement, that chorea does not begin after puberty, I can not accept, and Dr. McCarthy has published some cases in refutation of it, from my service at the Polyclinic Hospital.

Chorea of pregnancy is not Sydenham's chorea, according to Gilles de la Tourette, because the latter does not appear after puberty. Chorea of pregnancy is said to be rare in France, and the cases of chorea of pregnancy are supposed to be examples of the *maladie des tics convulsifs* or of hysterical movements. This opinion is not accepted by Joffroy. He believes there is no specific infectious agent of chorea, and that various infections or auto-intoxications may cause chorea in a person with an abnormal nervous system. One of Joffroy's patients had Sydenham's chorea in early life, and in her first pregnancy the symptoms of typical chorea reappeared. One remark made by Joffroy is of especial interest, viz.: Sydenham's chorea may develop in a hysterical patient, and therefore should not be regarded as hysterical chorea. It is not improbable that many of us would have difficulty in making the proper diagnosis in some cases of this character.

Risien Russell remarks that no properly authenticated case of chorea in a third pregnancy is on record, but Copeman[3] reports a case of this character, although he is in doubt whether it really was chorea gravidarum or whether the chorea should be attributed to the more ordinary causes and the pregnancy regarded as a mere accidental complication.

Wall and Andrews[4] have discussed the causes and treatment of chorea in pregnancy, and give an account of 40 cases, occurring in 37 women, seen at the London Hospital. The cases were believed to be truly choreic in character, as the movements were indistinguishable from those of Sydenham's chorea. In 16 out of the 37 patients, there was a previous history of rheumatism; 23 out of the 37 had previously suffered from chorea. Five only of the 40 cases ended fatally, 2 spontaneous aborted, and in 3 abortion or premature labor was induced. Both patients who spontaneously aborted, and 2 of the 3 in whom labor was induced, died. The mortality reported after induction of labor in these cases, and in those of other authors, is such as to render this procedure undesirable, and it has been discontinued at the London Hospital since 1895.

It seems strange to attribute chorea to syphilis, and yet this is what Mettler[5] has done. Chorea first appeared in a patient of his when the boy, who had inherited syphilis, was 7 years of age. Four attacks occurred, about a year apart, and each attack was more severe than the previous one. All the usual *remedies for* chorea failed. Two weeks after the administration of iodid of potassium had been commenced there was a *noticeable* diminution in the movements, and in a week or two more they ceased entirely.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] British Med. Jour., vol. ii, 1903, p. 449.

[2] Revue Neurologique, 1900, No. 11, p. 521.

[3] A. H. Copeman: British Med. Jour., vol. ii, 1903, p. 17.

[4] Wall and Andrews: Abstract in Epitome of Current Medical Literature, British Med. Jour., vol. ii, 1903, p. 7.

Sutherland[6] has recently discussed the relation of chorea to Graves' disease. All are agreed, he says, that movements of a choreiform type are sometimes manifested in Graves' disease. He quotes Gowers as saying that such movements must be regarded in some cases as a complication, although in a few cases in childhood true chorea has been supposed to exist. Dieulafoy has expressed the opinion that choreiform movements may occur in Graves' disease, but that there is no true chorea associated with Graves' disease, and that Graves' disease always occurs first.

Sutherland reports two cases to show that Graves' *disease may follow* chorea. One of the cases came under his observation during the transitional period between chorea and Graves' disease, and he had difficulty in deciding which disease the *patient* was suffering form. Choreic twitching, goiter, tachycardia, and slight staring of the eyes were the symptoms present.

Sutherland thinks these two diseases depend on a somewhat similar affection of the central nervous system, but the pathology of neither is known.

The association of chorea with epilepsy is uncommon, *according to Wollenberg,*[7] *but hysteria is often found with chorea.*

Some neurologists believe a peculiar facies exists in chorea. I have not been able to convince myself that it is common, and in expressing myself in this manner I know that I am not in accord with some whose opinion I value. The description of this choreic facies as given by B. Sachs[8] is as follows: "In advanced cases, if the tongue is protruded the mouth is opened much more widely than necessary, the eyelids and eyebrows are raised in the same effort, and then through a choreic movement of the masseters the tongue may be caught between the teeth." This, I think, is not what is meant by "*choreic facies*" by *all* who employ *this term.*

The choreiform movements of the external ocular muscles may be considered here because, according to Wollenberg, they are not uncommon. They are especially noticeable, he says, when the patient attempts to fix an object, at which time the bulbs are moved forcibly. The pupils are said to be *often* dilated, but the pupil only on the side of the choreiform movements when these are unilateral; this Wollenberg can not confirm.

A condition of spasms of the levator palpebræ that Posey[9] regarded as choreiform consisted of clonic and rhythmical contractions of these muscles so that widening of the palpebral fissures occurred about fifteen to twenty times in the minute. The contractions were entirely under the control of the will, the patient being able to initiate them or to cause them to cease when commanded to do so. The excursions of both eyes were *normal; there* was no nystagmus, and vision and accommodation were normal. The movements in Posey's case disappeared as soon as atropin was instilled *for* refractive purposes. It seems uncertain whether it would be better to class such a case as this among the tics or under chorea.

Choreic *spasm* of the vocal cords has been described as laryngeal *chorea.*

Chorea electrica I do not discuss, as most cases described under this title *probably belong* to convulsive tic.

W. Gordon[10] has found a change *in the* patellar reflex in chorea in some cases. When the patient is recumbent, if one raises the knee, allowing the heel to rest on the couch, making sure that all the muscles of the limbs are relaxed for the time being, and if then one tests the patellar reflex in the usual way, the *foot is found to rise* more or *less* smartly, but instead *of falling back immediately* it remains suspended for a variable time and then slowly sinks back to its initial position.

Eshner, in this country, *has made some observations* on the tendon reflexes in chorea, which lead him to support Gordon's views, but I have been unable to convince *myself that* there is anything characteristic in the patellar reflex in chorea.

In regard to the treatment of Sydenham's chorea, I think confinement to bed is of the greatest importance in severe cases. It is only *in this way that we can obtain quiet and freedom from* excitement in many of the cases of *chorea*, and it is especially valuable in severe *cases.*

Von Bechterew[11] seeks to put the administration of arsenic in chorea on a scientific basis. It has been demonstrated experimentally, he thinks, that arsenic causes a temporary excitability, but later a diminution of the reflexes, and affects first the nerve centers, then the nerves, and finally the muscles. He does not approve of the method recommended by Comby, viz., the administration of large doses of arsenic, and Comby himself had paralysis in one case treated in this way. Von Bechterew gives arsenic, bromid of *sodium or potassium and antipyrin* together in treating chorea, and in severe cases he adds salicylate of soda, on account of the supposed relation of chorea to rheumatism.

The administration of arsenic should be watched very carefully when the drug is given in chorea, and it is my custom, in prescribing Fowler's solution, *to order* about two fluid drams and to give directions that it is not to be renewed without permission. A number of cases of arsenical neuritis from Fowler's *solution have* been reported, and I myself have seen this occurrence. Heubner[12] speaks of a case of chorea followed by neuritis of the lower limbs, in his opinion not due to arsenic because not more than five drops had been given three times daily, and no other signs of arsenical poisoning were detected. The report of this case, though brief, reads as though Heubner *believed* that the chorea was the cause of the neuritis. Some people show idiosyncrasies toward arsenic, and I have seen herpes *zoster develop after Fowler's solution* had been given *for a week or ten days in small doses*, and it is more probable that it was the arsenic and not the chorea that caused the neuritis in Heubner's case.

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[5] Mettler: Amer. Jour. of the Med. Sciences, September, 1903, p. 481.

[6] Sutherland: Brain, 1903, p. 210.

[7] Wollenberg: Nothnagel's System. vol. xii, No. 2.

[8] Sachs: Nervous Diseases of Children. Wm. Wood & Co., New York, 1895.

[9] Posey: Journal of Nervous and Mental Disease, July, 1902, p. 410.

[10] Gordon: British Med. Jour., March 30, 1901, p. 765.

[11] Von Bechterew: Centralblatt. f. Nervenheilkunde und Psychiatrie, August, 1900, p. 417.

[12] Heubner: Berl. klin. Woch., Dec. 2, 1901, p. 1215

R. T. Williamson[13] says that in mild cases of chorea he has seen decided improvement by treatment with five minims of peppermint water three times a day, or with very small doses of quinin, one-quarter of a grain. Therefore, while his mild cases have done well on aspirin, he hesitates to attribute the improvement to this drug. In severe and persisting cases, he believes aspirin is of distinct service in diminishing the duration of the affection. Though the drug does not immediately check the choreic movements, its administration is usually followed by distinct improvement in six or seven days after a dose of ten or fifteen grains four times a day has been reached. He has noticed steady and marked improvement following the use of aspirin in severe cases of long duration which have resisted other drugs and methods of treatment.

He usually commences with ten grains, as a powder, twice daily in children over 7 years of age, and rapidly increases up to ten or fifteen grains, according to age, four times a day. Toxic symptoms, like those caused by salicylates, do not often occur, and most children take the large doses without ill effects, but occasionally the drug causes gastric irritation or vomiting, even in doses of five grains. It is important that no alkali should be taken just after the aspirin, otherwise the drug is likely to decompose in the stomach.

Lees[1] thinks that the failure of an antirheumatic treatment in chorea may be because the doses have been too small. The dose of sodium salicylate for a child of from 6 to 10 years should be at first 10 gr., with 20 gr. of sodium bicarbonate. After two or three days the quantity should be increased to 15 gr. and 30 gr., respectively. After two or three days more it may, if necessary, be increased to 20 gr. and 40 gr. These doses should be given every two hours during the day, and every three hours during the night, 10 doses in the 24 hours. Thus the total amount of salicylate given at first is 100 gr. daily, increased to 150 gr., and finally to 200 gr.

A careful watch must be kept for any symptoms of salicylate poisoning, and especially for a peculiar, deep inspiration simulating the "air-hunger" of diabetes. If this occurs, the medicine must be immediately given up. The association of the alkali (sodium bicarbonate) seems to lessen the danger of poisoning.

The large doses of salicylate recommended by Lees did not meet the unconditional approval of the members of the British Medical Association who heard his paper.

The results of the treatment of 180 cases of chorea minor by various methods brought before the Moscow Society for the Study of Children's Diseases,[14] were as follows: The cases (86 in number) treated with arsenic were of the shortest duration, but simple rest lying down, in new surroundings (29 cases) without medicament, proved to be little inferior as a method of cure. Antipyrin (20 cases) was less useful, and bromid (47 cases) and quinin (31 cases) quite useless. The average time of recovery with the arsenical treatment was 63 days. Stress is laid on the great importance of treatment being commenced during the first three weeks of the disease.

The mortality of ordinary chorea is low, but that of chorea gravidarum has been placed by Oppenheim at about 25 per cent., and by Gowers at from 20 to 25 per cent. Death from chorea is usually through exhaustion, and, as exhaustion is not common in simple chorea, the opportunity to study the pathology of the affection is not often given.

Hudovernig examined the nervous tissues from a case of chorea.

> The patient, a girl, 16 years old, had chorea about six or seven weeks, when it terminated fatally. Scattered hemorrhages were found throughout the body. The bacteriologic examination of the blood and spinal cord was negative. The vessels of the central nervous system showed some thickening of their walls and there were new formations of vessels and perivascular round-cell infiltration. These changes were most pronounced in the medulla oblongata and pons, especially in the area of the motor tracts. The so-called chorea bodies (*Choreakörperchen*) were found near and remote from the vessels. These are round or oval, structureless formations, varying from the size of a neurogliar cell to ten times this size. They were found especially numerous in the pyramidal tracts. A slight leptomeningitis and ependymitis were observed. The nerve cells of the cerebral cortex showed granular change of the chromophilic elements.

Hudovernig thinks that the toxic and infectious nature of chorea is generally accepted, and he attributes this theory to Leube. Some, however, do not believe that all cases of chorea are of this nature, but especially so are the postpuerperal or postrheumatic cases. This opinion has been strengthened by the finding of diplococci or staphylococci in cases of chorea (Pianese, Dana, H. Meyer, Geddes and Clinch).

Hudovernig has not found any case of chorea with a chemical examination of the blood reported, but he finds that encephalitis and meningitis are common in chorea. In his case the alteration of the nerve cells of the cerebral cortex was intense and in all parts of the cortex, and this indicated that all parts of the brain were exposed to the injurious substance.

The only other case of chorea in which the method of Nissl was employed that Hudovernig knows of is the case of Silvestrini and Daddi. These investigators found rounding off of the pyramidal cells, chromatolysis and pigment formation within the cells.

Elischer seems to have been the first to find the "chorea bodies" in the brain in chorea, although this author did not attribute much importance to them. He found these bodies in rows or groups, having a faintly concentric arrangement, and always near blood vessels. Flechsig found similar bodies in the globus pallidus and in the lymph sheaths in four cases of chorea. Jakowenko, in six cases of chorea gravis, found these bodies in the lenticular nucleus, and in one case also in the optic thalamus and caudate nucleus. All six patients had also acute delirium.

Jakowenko studied the brain in a case of acute delirium without chorea and found some similar bodies, with, however, a different chemical reaction. Laufenauer also found these bodies in the brain from five cases of chorea; they were chiefly in the basal ganglia, but were found in the entire central nervous system. Wollenberg found these bodies in cases not of chorea as well as in chorea, and he concludes that in some cases of chorea, simple chorea, as well as chorea with delirium, they are found in the globus pallidus; they are not characteristic of chorea, as they may occur in other diseases. These bodies are probably caused by calcification of an organic ground substance (*Grundsubstanz*), concerning the nature of which a positive opinion can not be formed. Von Bechterew and Dana also have found the chorea bodies in chorea, but they are not present in every case of chorea.

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[13] Williamson: Lancet, Aug. 22, 1903, p. 326.

[14] Abstract in Epitome of Current Medical Literature, British Med. Jour., vol. ii, 1903, p. 27.

Hudovernig[15] believes that the lesions of chorea minor are not confined to the same part of the brain in every case, although the basal ganglia are often affected; but that in every case the motor tracts are irritated in some part of their course.

His conclusions are: Chorea minor is an infectious disease and the infection is hematogenous. In the mild cases the infection causes a disturbance of nutrition, but in more severe cases it causes changes in the blood vessels and formation of colloid bodies, the latter being an evidence of a severe form of the disease. "Chorea bodies" are characteristic of chorea, although they are not found in every case. Choreiform movements are always the expression of direct or indirect irritation of the pyramidal tracts at some part of their course.

Hudovernig found that the "chorea bodies" have a great affinity for hematoxylin, stain pale red with carmin, remain unstained by the Nissl method, and do not give the amyloid reaction. He does not discuss the resemblance of these bodies to the so-called amyloid bodies, but from his description and drawings they seem to resemble them closely.

In examining some sections from a case of Sydenham's chorea, prepared by Dr. J. H. W. Rhein, we found small, recent hemorrhages in the cerebral cortex.

Dana,[16] in a case of Sydenham's chorea, found chronic leptomeningitis of the convexity of the brain, hyaline bodies in the brain cortex, slight meningitis of the upper part of the spinal cord, slight meningo-encephalitis, and diplococci in the proliferating tissue between the meninges and the brain.

In a case of chorea gravis, Geddes and Clinch[17] found great congestion of the meninges, which had resulted in severe hemorrhages. The basal ganglia showed no congestion to the naked eye. Intense degeneration of cells and of the myelin sheaths in the brain was found, but the appearances were regarded as a result, rather than as a cause, of the symptoms, and resembled the findings obtained in animals deprived of sleep. Some of the blood vessels were much thickened.

A case in which I have been able to make a microscopic examination of the brain is as follows: The patient, a girl, 16 years old, had had chorea for about five weeks. She had inframammary tenderness and was unable to talk coherently. A systolic murmur was heard at the apex. She had violent choreiform movements of the entire body, including the face. The head was tossed from side to side, the arms and legs were violently moved. At times she was comparatively quiet, while at other times the whole body was tossed violently from side to side, the head and limbs striking against the side of the bed. These violent attacks did not occur at regular intervals and were increased by observation.

Family History.—The family was neurotic, and the father had been in an insane asylum. About six weeks before the girl came to the hospital her household goods had been sold by the sheriff, and she had been much worried by this.

Present Illness.—She had had chorea only about ten days before admission (May 30, 1901). It began with twitching of the muscles on one side of the body, but within a few days the other side became involved.

Progress of Disease.—While in the hospital the girl had delusions. She believed her mother and uncle had visited her, although they had not. The movements were absent during sleep. Later she became unconscious of her surroundings, and the movements became exceedingly violent.

She died May 31, 1901. The nurse found the patient dead, although five minutes previously she had been sleeping and seemed better. Directly after death the temperature was 109.

Necropsy.—June 1, 1901. Pathologist, Dr. Pearce. The pathologic findings were chronic mitral endocarditis, acute parenchymatous nephritis, fatty degeneration of liver, edema and congestion of lungs, hypoplasia of heart and aorta.

The nerve cells of the paracentral lobules stained very diffusely with thionin and a small round cell infiltration was found about the small vessels of the cortex, but not within the pia. The microscopical examination has not been completed.

Huntingdon's chorea is regarded now by most physicians as distinct from the Sydenham form, although Charcot held a different opinion.

It has been pointed out that intentional movements sometimes diminish the jerkings of Huntingdon's chorea, whereas they do not in Sydenham's chorea (Ewald, Peretti, Lannois, and others); and that the muscles of the eyeball are not implicated in Huntingdon's chorea, whereas they are in Sydenham's form. The tendon reflexes often have been found exaggerated in Huntingdon's chorea (Biernacki, v. Sölder, Wollenberg).

In many cases of Huntingdon's chorea the neuroglia has been found proliferated and the gyri atrophied, and a resemblance has been pointed out to the alteration of paretic dementia, although in the latter the frontal lobe is chiefly affected and in the former the motor area.

In a case of Huntingdon's chorea examined by Stier, the brain was atrophied, the small, round cells were more numerous in the second and third cortical layers, especially in the motor regions, the neuroglia cells also were more numerous, the tangential fibers were diminished in number, and the small, pyramidal cells of the second and third cortical layers presented degeneration and diminution in number. He was unable to find the accumulation of small, round cells especially about the vessels, and the alteration of the membranes described by others. He says that, in all cases, an increase of the glia cells, or of small, round cells, was found. In some cases hemorrhages have been observed. In most cases the cortical motor region has been affected, and in all cases the nerve cells have been diseased, even though the alteration was slight in some cases. The cells of Betz escape, or are little degenerated. In most cases the walls of the vessels have been thickened.

Stier[18] goes so far as to say that no one in the last twenty years has doubted that the cerebral cortex is the seat of Huntingdon's chorea.

The disease begins late in life, with proliferation of the neuroglia in the motor centers, either diffusely or in areas, and is found especially in the second and third cortical layers; simultaneously, the vessels become diseased, and cellular infiltration into the pericvascular and pericellular spaces, and sometimes hemorrhages occur. The small and medium size ganglion cells become diseased, whereas the large nerve cells remain intact.

In a case of Huntingdon's chorea that I examined small collections of round nuclei were seen about some of the capillaries of the cortex of the paracentral lobule, and also elsewhere in the cortex not about the vessels.

It is difficult to form a judgment concerning the cells of Betz, as the sections were not stained by Nissl's method, but some of them were smaller than normal and contained eccentric nuclei.

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[15] Hudovernig: Arch. für Psych., vol. xxxvii, No. 1, p. 86.

[16] Amer. Jour. of the Med. Sci., January, 1894, p. 31.

[17] Journal of Mental Sciences, 1898, p. 811.

[18] E. Stier: Arch. für Psych., vol. xxxvii, No. 1, p. 62.

The condition of postapoplectic hemihypertonia, so far as I know, has been reported in this country only by me and later in a case from my clinic described by McCarthy. This form of spasm is very different from athetosis. It is of tonic character, affecting one side of the body, is associated with a little weakness, but not with contractures, develops after an apoplectic insult, and probably is due to irritation of the motor fibers at some point below the motor cortex.

Von Bechterew deserves the credit for clearly recognizing and first describing the condition, and has spoken of it as hemitonia apoplectica, but inasmuch as it affects only one side of the body and develops after an apoplectic attack, I have suggested that it might be called more appropriately hemihypertonia postapoplectica. The disorder is such a remarkable one that I cite a portion of the report of my case.[19]

The patient is a well-developed woman with no distinct atrophy of any of the muscles. Her gait is a little spastic on account of the spastic condition of the right lower limb, but she does not swing this limb from the hip, as is so commonly seen in hemiplegia, nor does she drag it. Her station is good. The right knee-jerk is restrained on account of the spasticity of the lower limb; the left is normal. The toes of the right foot are usually flexed, but the condition is not one of contracture; it is one of tonic spasm and every few moments the degree of tonicity varies. No athetoid movements are seen in the toes. The right foot appears to be about the same size as the left.

When the right hand is at rest in her lap it is often slightly flexed at the wrist, and the fingers slightly flexed at all the articulations. The hand may remain in this position a long time, while the limb is at rest, without any evidence of athetoid movement. If she attempts to elevate the right upper limb from the shoulder she accomplishes the movement without difficulty, but the right wrist becomes strongly flexed, the hand may be drawn around so that the back of the hand is turned away from the body of the patient, or at other times the palm may be turned away from her body. The condition is one of tonic spasm, and the spasms vary greatly in degree from time to time, and are increased by excitement. When she was told to make some movement with her left hand, such as removing her shoe, the position of the right hand and fingers changed from one of flexion to one of extension; the fingers were fully extended, but still in tonic spasm. At no time did this condition of great hypertonicity disappear from the right hand: it varied merely in degree, and the position of the hand changed according as the spasm predominated in one group of muscles or another, but the flexors were always most involved. It was impossible at any time to detect any athetoid movement. She is able to carry objects suspended from her right hand, and can perform such work as wringing clothes, the powerful grasp of the right hand enabling her to hold the clothes firmly. She can not venture to hold anything breakable with the right hand, as the spasm may relax and the object fall to the floor. When quiet and unobserved the spasm in the right hand is much lessened in intensity, and she may be able to use the hand to a surprising extent, according to the statement of her sister. At times the hand is forcibly flexed at the wrist, the fingers are flexed, and the thumb is firmly held between the middle and ring fingers; the hand may then be rotated towards the right or left; at other times the hand is rotated at the wrist and the fingers are partially extended; at other times the hand is extended at the wrist, the thumb flexed into the palm and the fingers firmly flexed on the thumb. At no time has the spasm of the extensors predominated over that of the flexors.

Involuntary movements in the paralyzed side, truly choreiform in character, occurring after hemiplegia in the adult must be very rare.

Bonhoeffer remarks that Charcot called attention to the frequent association of hemianesthesia with posthemiplegic chorea, and concluded that in front of the *carrefour sensitif* is a bundle of fibers, a lesion of which causes hemichorea. Gowers thought that a lesion of the optic thalamus is followed by chorea. Kahler and Pick believed that the choreiform movements are caused by irritation of the pyramidal tract. In Bonhoeffer's case of chorea resulting from carcinoma in the superior cerebellar peduncles the movements were chiefly unilateral, but the case differs from most of those of hemichorea reported in the absence of hemiplegia or hemiparesis and of sensory disturbances.

In some cases of hemichorea the movements at times are more choreiform, at other times more athetotic.

The cases of choreiform movements resulting from lesions of the cerebral cortex collected by Bonhoeffer are not very convincing. In the cases cited by him in which hemichorea occurred from lesions below the optic thalamus the lesions involved the nucleus ruber or superior cerebellar peduncles. Lesions in the lower part of the medulla oblongata or in the spinal cord, without associated cerebral lesions, apparently never cause choreiform movements, and this is against Kahler and Pick's theory. Lesions in front of the knee of the internal capsule and in front of the projection fibers of the central gyri, do not seem to cause choreiform movements.

Hemiplegia is common, hemichorea is rare: it is hard to understand why the latter should be so if Kahler and Pick's theory be correct.

Lesions of the cerebellum, Bonhoeffer[20] finds, cause choreiform movements, and he says that in all cases of chorea caused by lesions the fibers of the superior cerebellar peduncles have been implicated.

CONVULSIVE TIC.*

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From the great and rather confused mass of affections characterized by excess or perversion of movement, one group or sub-group is coming to be pretty well defined: a variety of hyperkinesia which might well be called simply tic if it were not for the occasional use of this word as a contraction of *tic douloureux,* painful tic, to designate trifacial neuralgia. This being the case, it seems best to call the tic of movement convulsive tic. I believe that ultimately the qualifying word convulsive will be dropped and that the term tic will come to mean motor tic exclusively. In this paper I shall often so use it.

Convulsive tic embraces movements varying as regards location, extent, violence, amplitude, frequence and duration. It may affect any part of the voluntary muscular system, and in the cases of extreme severity, called by Gilles de la Tourette *maladie des tics*—the disease of tics—the entire body is affected by peculiar, sudden, more or less violent, intempestive, malapropos gestures, grimaces, contortions.

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[19] Spiller: Philadelphia Med. Jour., Dec. 16, 1899.

[20] Bonhoeffer: Monatsschrift für Psychiatrie und Neurologie, vol. i, p. 6.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Although the tic group embraces such a great variety of movements, and although now and again an individual case may present great difficulties of diagnosis, and show that here, as elsewhere, the dividing line may be hard to draw, none the less are the great traits of tic characteristic and the diagnosis generally easy.

I shall attempt no definition of tic, as doubtless it would be too faulty to be useful. A brief description of the disease, with a few comments, will serve the present purpose.

In the main, convulsive tic may be said to be a habit spasm, but it is more than a habit, less than a spasm. Strictly speaking, it is no spasm at all. It is a movement based on an uncontrolled and, except for a brief space, uncontrollable impulsion. It is the motor impersonation of an imperative inclination, the motor gratification of an imperative appetite. To state it another way, the motor phenomena are the objective manifestation of tic; they do not constitute the disease. While the movements of tic are for the greater part fairly beyond the control of the patient, they are not entirely so, and in this they are trenchantly separated from true spasm. In its inception I believe that a tic is always voluntary. With time it becomes more and more automatic, passes more and more into the subconscious, more and more beyond the will, but a volitional element always remains. In other words, tic is of psychic origin. When Brissaud called spasmodic torticollis, which is a variety of tic, "mental torticollis," he coined an illuminating term.

The expression convulsive tic implies a motor malady. This is only half of the truth, and, if one may be pardoned a hibernianism, the lesser half. In nearly every case of tic the original cause is sensory. Not only that; very often it is the sensory element which perpetuates the spasmodic movement and makes it hard to cure. Even though each movement be not the direct response to a sensation, one is pretty sure to find that the execution of the movement gives the patient a certain sense of relief or satisfaction, which shows a sensory foundation for the trouble.

Let me illustrate. In crossing the great American desert a man suffers greatly from alkali dust. It irritates his eyes, he develops some conjunctivitis and blinks constantly. Having reached the coast, the palpebral spasm continues even after the conjunctivitis is cured. The constantly recurring spasm irritates the conjunctiva, the sensation from the conjunctiva starts the spasm, and thus is developed a most rebellious habit spasm, blepharospasm, tic.

In one of my clinics I saw an exactly analogous case caused by a workman digging a ditch in dry sand during windy weather. The vicious sequence was as follows: Repeated puffs of sand in the eyes, repeated violent closing of the lids, repetition of this closure after work, when there was no sand in the eyes, still some slight discomfort, enough to start the impulse to close the lids, perpetuation of an uncontrollable impulse to blink the lids tightly together.

A boy has an ill-fitting collar or a coat too tight in the armhole. This begets a twisting drawing of the neck, with tilting of the chin or a writhing shrug of the shoulder. The collar is removed, the armhole enlarged, but the abnormal movement continues.

A child has nasal catarrh which causes a sense of discomfort about the nostrils. In consequence there is a twitching and drawing of the nose and lips. The catarrh is cured, the movements remain.

Because of an ordinary "stiff neck" a man repeatedly turns his head in a certain direction. Putting a little strain on certain muscles affords a certain degree or sort of relief. Or, in consequence of the sore muscles, he carries the head in a constrained, unnatural position. After recovery of the myalgia the patient continues to carry the head to one side or to repeatedly twist it in a certain direction. This tendency becomes more than a habit. It is a veritable obsession, not to be resisted, causes a sense of acute dissatisfaction when resisted and when yielded to affords a certain sense of relief. This is tic.

A number of times I have known some peculiar motion incidental to the patient's occupation to develop into a tic. For instance, within a few days I have examined a waiter with spasmodic torticollis. His affection draws the head over and tilts the chin into just the attitude he assumes in carrying a tray, heavy with dishes. However, in such cases I think the discomfort of fatigue or strain has much more to do with the genesis of tic than does the mere repetition of certain muscular contractions.

In a few instances, especially in children, the inception of a tic lies in imitation. Afterward the sense of relief attained by executing the movement or the sensory result of the movement itself serves to perpetuate it. In other cases it is simply impossible to discover what the exciting cause has been. It has been so slight or so transient, or both, as to escape the memory of the patient if, indeed, he was conscious of it at the time.

A most important element in the genesis of tic, and equally a matter of paramount importance in prognosis and treatment, is the psychic state or mental constitution of the patient. Tens of thousands of children have nasal catarrh and ill-fitting clothes, thousands of adults have rheumatic stiffness about the neck and shoulders, very few acquire tic. At present hundreds of thousands of women are wearing large hats so poorly balanced on the head as to cause a feeling of insecurity or slight discomfort. Any one who will take the trouble to look may see many of these women give the head a little jerk or shake because of the sensations produced by this maladjusted headgear. Of these many, assuredly a few will develop a tic. I have seen it—a tic which will continue when fashion shall have returned to the compact close-fitting toque.

But why, of the very many, do only some twitch the head? Because they are more sensitive to impressions and more readily translate a sensation into motion. Of the relatively few who jerk, why will only very few, indeed, develop a jerk neurosis? Simply because of a still higher degree of hypersensitiveness and nervous instability. The subjects of tic are too sensitive, too impressionable, their sensori-motor mechanism is too glib and they lack in instinctive as well as voluntary inhibition; else they would not have tic. Of this I shall have something more to say in connection with prognosis and treatment.

CHARACTERISTICS OF THE MOVEMENTS.

Now, as to the characteristics of the movements themselves, it may first be said that they represent natural acts or that they are imitations of natural acts.

I had almost said physiologic acts, but the term is too strong. It may be physiologic to pinch the eyelids tightly together when a foreign body is blown into the eye, but to wriggle the shoulder about because the sleeve is too tight, to rotate and twist the head about because of a discomfort in the neck, or to make grimaces because of dessicated mucus within the nostrils is scarcely within the bounds of physiology. Still these acts are hardly pathologic. They are strictly logical, they are co-ordinate, the legitimate result of a given cause. If the source of irritation having been removed the movement is continued, it is unnatural, pathologic. If, in addition, it grows more imperative, can not be resisted, becomes automatic or subconscious and carries with it a sense of relief, or at least relief as compared with the tension and discomfort of resistance, it constitutes a tic.

But the movement itself remains the same. The same muscles act in the same way. The movement is purposive. It is an action perfectly adapted to an imaginary end or to an object which has disappeared. It shows the same co-ordination, generally the same duration, but may become more tempestuous. Such a movement is in marked contrast to the inco-ordinate purposeless jerkings and writhings of chorea, the vermicular twistings of athetosis, the rhythmic oscillations of hysteria, the fascicular twitching of paramyoclonus and the anatomically localized true spasm.

The movements of a tic are always a repetition of the same act. This statement needs some explanation: *a.* The movements may vary in degree, some of them being more or less abortive, others more or less complete *b.* As time passes they incline to become more intense or violent. *c.* A tic also tends to spread to adjoining muscles or muscular groups and to add to itself correlated physiologic acts. A tic of the nose is apt to soon involve the lips and adjoining facial muscles. When sounds of snuffing or sniffling are produced, pharyngeal and laryngeal sounds may be expected, if the disease continues. *d.* In the *maladie des tics,* in which the whole body is affected, the abnormal movement may be now of this part, now of that. A grimace is followed by a shrug, that by a grunting sound and this by a kick.

With these qualifications the dictum beginning the foregoing paragraph holds good; that is, a tic is the repetition of the same sort of thing in the same place. This, again, is in marked contrast to chorea in which no two movements are exactly alike.

The third trait of tic to which I beg to call attention is one already mentioned; namely, it can be voluntarily restrained to some extent, and in many cases can be quite controlled for a time by some maneuver which the patient has instinctively or deliberately hit on. These tricks of control are oftenest seen in cases of spasmodic torticollis. Frequently they are done unconsciously by the patient, but may nearly always be found. A few examples will illustrate:

An orthopedist friend was exhibiting to a medical society an apparatus for torticollis, and, incidentally, a patient. I asked the latter in what way he could control his spasm. He said "in no way:" that he couldn't control it at all. Even as he spoke he passed his right hand to the back of his head and grasped the occipital region in the hollow of his hand. With this mere semblance of restraint, the drawing and rotation of the head ceased at once. A patient of my own, when asked to undress for the first examination, stood with his head propped against the edge of an open door, as he slowly got out of his clothes. I asked him why he did that. He replied that it was the only way of steadying his head while he was on his feet with both hands occupied.

Many of these patients are comparatively comfortable while seated in a high-backed chair, where the head can be rested. With numerous others a favorite posture is with the chin resting in the crotch between thumb and flexed second finger, while the index is extended upward along the cheek. One of my patients had not for years appeared on the street without a certain straight-handled umbrella. This he held perpendicularly, with the handle alongside his nose, and with this mere trick of restraint was able to go about with his head relatively straight and quiet. In a remarkable lecture, Brissaud[1] has given some interesting examples of the restraining action of the touch of a finger, etc., and Meige and Feindel[2] quote many more; but one of my own cases showed the potency of an idea in restraining tic to a degree that, I think, must be unique.

The patient was a man of 41 years, who had been suffering for eight months with spasmodic torticollis, which had become very bad. His head rotated to the right. During my examination, as one of the strong contractions came on, I asked him to turn his head to the left. He said he could not possibly do so during the spasm. I told him that he could, and, opening a blade of my pocket knife, said I would immediately demonstrate that I was right. He at once saw that I meant to prick the side of his face to make him turn it the other way, and assured me that that was not necessary; that he had an easier and more comfortable way. He extended his right arm to the right, crooked the elbow and wrist so as to point the extended index finger at his face, just as he would have held a pistol to shoot off the end of his nose, and then moved this hand rather quickly toward the nose. As he did so the head rotated toward the left, as if moved by an invisible power, and assumed a normal position. At no time was the finger nearer than eight inches from the face.

In accord with the foregoing is the fact that tic does not derange voluntary movements. A man with a tic, never so severe, of the right arm and shoulder shows nothing of it in his writing. The tic does not catch him unawares. When the impulsion to tic can no longer be bridled, he takes pen from paper, executes his tic, and then resumes writing. I know a successful artist who is afflicted with a bad tic of the head and arms. It delays his work more or less, but never deflects stroke of pencil or touch of brush. This alternation of constraint and compliance is something very striking. After unusually prolonged or complete voluntary control of the abnormal movements, especially if the patient can escape observation for a few moments, he will often recompense himself by a perfect debauch of tics until the craving is satisfied.

Tic is diminished by rest, quiet, preoccupation or mental diversion. On the other hand, it is made worse by self-consciousness, observation by others, excitement and other emotional states, pain and fatigue. During sleep it disappears entirely.

PROGNOSIS.

The prognosis of convulsive tic conforms to no rule. In children, ordinarily it is good. In fact, most of these little patients recover without treatment or with treatment for chorea, which amounts to no treatment at all. Nevertheless, a tic begun in childhood may continue through life. Most frequently when it begins at an early age and continues for many years, the location changes. Many of my cases have shown this. A tic about the nose ceases, or nearly so, to be succeeded by a lifting of the eyebrows. This passes away, the patient becomes possessed of an impulsion to shrug a shoulder, and this is followed by a sniffing or hemming tic. Finally, after years of "ticing," such a patient's tendency may crystallize into one permanent set of movements that continue to the end or until the degenerative age of dullness and slow reaction.

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[1] Leçons sur les maladies nerveuses, 1895, p. 502.
[2] Les Tics et Leur Traitement, Paris, 1902.

In adults, tic is a most rebellious disease. The more severe and chronic cases are seldom cured. The slighter ones yield to treatment fairly well. Occasionally the trouble disappears of itself or is simply controlled by the efforts of the patient. Of the tics more difficult to cure, spasmodic torticollis is the most frequent. In spite of a few favorable reports, Gilles de la Tourette's disease may be said to be incurable.

To consider the why and wherefore of this sinister outlook would involve a discussion of the nature, etiology and genesis of the affection. Such a discussion is not for a short paper, but I may mention two elements that bear on the prognosis. First, the nature of the patient; second, the nature of the disorder.

The patient is generally a nervous, impatient, hypersensitive individual in unstable equilibrium. Small things upset him and every upsetting makes him the more unstable. Mentally, he is unsatisfactory. His emotions are uncontrolled and he confuses desire with judgment. Ignorant of premises, he forms opinions none the less positive because groundless. The victim of impulse, appetite and feelings, he never knows what he is going to do or be.*

The disease has been called a psychomotor neurosis. I would prefer to call it a sensori-psychomotor derangement. Sensation is the beginning. This acts as a psychic excitant and the psychic state, or maybe the sensation and this together, as a motor excitant. The movement gives rise to sensation, which again starts the endless chain. Each step in the order of events incites the next, so that it seems as natural for a tic to continue as for the planets to pursue their orbits.

To these two elemental factors of a bad prognosis, I might add a third, applicable to cases in children: unstable, unreasonable parents. A child with tic is likely to be the spoiled child of spoiled parents. To an unfortunate heritage is added unwise rearing. What began as a natural, but unnecessary, movement is allowed to become a habit and then an infirmity.

In connection with the prognosis I may note that I knew one patient with severe generalized tic who committed suicide rather than longer endure his malady. Another patient, a lady with spasmodic torticollis which had not responded to rather prolonged treatment, died suddenly under circumstances strongly indicative of suicide. She had assured me that if she were not cured within a certain time, she would terminate her life, and she died at the end of the appointed time.

TREATMENT.

Given the above dubious prognosis, the question of treatment is somewhat embarrassing. It is the more so because my own efforts to cure severe tic, notably spasmodic torticollis, have been anything but satisfactory.

In children, if directions can be and will be carried out, most cases yield promptly. In accordance with what I have said concerning the cause of the affection, I begin with a careful search for any sensory state which would naturally cause the movement exhibited by the patient. About the face, the eyes and nose are the most fruitful sources of trouble, but all parts must be scrutinized. About the neck and shoulders, rheumatism is a frequent cause. Skin eruptions, ill-fitting clothing, traumatism are not unusual. Having removed the sensory excitant, I ordinarily adopt one of two methods: hypnotism or systematic stimulation of inhibition. The latter means constantly reminding the child of his tic, together with a judicious combination of penalty and reward. For successful effort he is recompensed, for letting go of himself he is punished, but both must be arranged so as to keep consciousness vigilant. That is, every single movement is to be accounted for. Rewards and penalties alike must be frequent and small. I have never known whipping a child to cure a tic. Many times I have known it to fail. But simply to prick the patient with a pin every time he made a grimace or jerked his head I have known to be perfectly effective.

To rephrase it: the tic is the result of a strong but subconscious impulse. It is followed by a certain amount of satisfaction or relief, likewise scarcely appreciated. It is, if you please, the instinctive gratification of an unconscious craving. Now, if with each and every gratification there occurs a disagreeable or painful impression, this soon impresses itself on consciousness and coincident with the impulse to tic comes the impulse to forbear. As soon as the latter impulse regularly exceeds the former, the tic ceases. When the former ceases to be, the tic is cured.

This method I prefer to hypnotism if parents or attendants will carry it out. It is the more natural and, I think, the more permanently effective. Sometimes it is easier and quicker to hypnotize. Under some circumstances it is about the only available way. Most children may be hypnotized, and if the sittings can be sufficiently frequent, a tic may be expected to improve rapidly.

As before stated, treatment of adults is unsatisfactory. To enumerate the almost countless forms of tic and then consider all the means of controlling them would require a treatise as tedious as it would be lengthy.

Principles of treatment must be the same for the adult as for the child. The material to work on, however, is vastly different. Putting aside the mild tics which are scarcely more than habits, stereotypes, as the French call them, excluding the more complex syndrome of Gilles de la Tourette and taking spasmodic torticollis as a type of the more severe and refractory tic of the adult, I beg to submit a few remarks on its treatment. Before doing so, however, I should state that while spasmodic torticollis conforms to all of the essential standards of tic, it seems in some respects to be in a class by itself. It is the only tic which, with any frequency, is consistently tonic. Sometimes the nervous instability, upon which I have laid much stress, is scarcely apparent. The discomfort may amount to decided pain: very rare in other tics. Finally, this form of tic, after persisting for many years, may gradually take on characters suggestive of degenerative disease of the nervous system. I[3] have now under observation a man who many years ago began to have what was apparently an ordinary spasmodic torticollis. Indeed, an eminent surgeon operated on him for this affection. He has gradually grown worse until now nearly all the muscles of the body are involved in irregular clonic and tonic contractions. He walks but poorly, has quite imperfect use of the arms, and the trunk is distorted with what appear to be permanent organic deformities.

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* It seems proper to add that this impressionability and emotional instability may not be very apparent and their presence sincerely denied by patient and friends. More than once I have been unable to uncover the neurotic tendency in one interview. Repeated observation has never failed to reveal it.

Operative treatment has been notoriously unsatisfactory. Indeed, torticollis is the only tic for which operation has been done with any frequency. Based on the erroneous idea that spasmodic wry neck is a local spasm and that paralysis of the contracting muscles will render the movement impossible, the procedure was, from the first, doomed to failure. The affection is a physiologic, not an anatomic hyperkinesia, and no operation yet devised can abolish movements of the head when the patient, consciously or unconsciously, chooses to make them. About two years ago I saw a case of progressive muscular atrophy in which both sternomastoids and both trapezii, as well as some other neck muscles, had quite disappeared. There was no normal movement of the head or neck which the patient could not execute.

This is not to say that operation has never succeeded. It has. Personally, I have never seen a success, but I have heard of one or two and some are on record. When operation succeeds it is not by way of paralysis but because the pain, fixation, and psychic impression inseparable from the operation serve to break up the habit. Practically the same conditions may be attained by milder means without the danger of aggravating the trouble. That operation makes these cases worse is no uncommon experience.

I have known a typical tic of the neck muscles to be caused *de novo* by operation on the spinal accessory nerve. Nearly two years ago a gentleman of 36 years was referred to me for an opinion. The case was a sufficiently typical one of congenital cerebral quadriplegia (Little's disease) of the very mildest type and without mental impairment. As in so many of these cases, there was some excess of associated movement and considerable, though not severe, irregular rolling, jerking movement of the head and neck. This was increased by conversation, by active use of the hands, and by excitement. It constituted no disability, was somewhat annoying, but hurt the patient's vanity more than anything else. The question of operation had arisen. It was easy to see that the sternomastoid and upper trapezius on one side were the muscles most active in causing the movements, and I told the patient that paralyzing these muscles might make the movement somewhat less noticeable. The operation was well done, but it served only to add a new trouble to the old. The discomfort of the wound, together with the anxiety and uncertainty regarding the result, or some other effect, were sufficient to start a spasmodic torticollis in an individual already nervous, impressionable and unstable. The new disorder showed all of the typical characteristics of "mental torticollis," or tic.

My own idea of the surgical treatment of spasmodic torticollis would be section of the sensory roots of the cervical spinal nerves. All sensation from the affected area having been cut off, I believe that the so-called "spasm," the result of sensory stimuli, could easily be controlled. Of course, this operation is too serious to be recommended for a disease not dangerous to life.

So far as I can ascertain, the mechanical or orthopedic treatment of spasmodic torticollis has been no more successful than the operative. I know of no case thus cured, although I have learned of a very few that have been improved.

My own attempts have been along various lines. Some years ago injections of atropin into the affected muscles were advised. I tried them, and they made my patients worse. The muscular soreness produced by the injection simply increased the local discomfort and the patient's self-consciousness. The ordinary sedatives I have tried, and they have constantly failed in my hands, as in others. A few years ago, in a discussion before the American Neurological Association, conium was highly spoken of. In my next case I gave it a faithful trial. At first there was some relief, but this was transient, and subsequent doses, carried to the toxic limit, accomplished nothing.

In one bad case I tried the opium-bromid treatment, as advised by Flechsig for epilepsy. It was of no avail.[4] During the course of opium the patient was not uncomfortable. When I changed to the bromid he did not take it well, and was soon as bad as ever. Once I nearly cured a bad case of many years standing by means of hypnotism. For several weeks the case progressed in a way most satisfactory to me and wonderful to the patient. Then, contrary to my strict injunctions, he had a long interview with a relative. This made him more nervous, which I at once noticed and finally elicited the cause. My reprimand was resented. Because of his frame of mind, the following sitting was less successful than the preceding ones. The lack of success engendered lack of confidence, and the next sitting accomplished nothing. Disappointment, regret, loss of hope, despair, followed in turn and the patient returned to his home nearly as bad as when he came.

Two years ago I saw, in London, a case of Bastian's practically, not absolutely, cured by keeping the patient asleep most of the time for several weeks. I came home and tried the method on an old and very rebellious case. The result was gratifying. At the end of the sleep period the patient was very much better and then, under the exercises to be mentioned presently, he continued to improve. He returned to work with only a trace of his trouble, but a perfect recovery was not obtained.

The very next time I used this treatment, dismal failure was the result. Even when the patient was asleep 18 hours out of the 24, during waking moments the spasm asserted itself with a vengeance. And, as the effect of the drugs wore off, the trouble resumed its wonted severity.

My friend, Dr. Singer, formerly of London, now of Omaha, recently informed me that in two cases he had had excellent results from suspension. I immediately tried it, but before the treatment was well under way, the patient got homesick and left the hospital.

Meige and Feindel have elaborated a system of exercises advocated by Brissaud and have treated a great many cases in this way. Their results have been good, the method is rational and constitutes a real addition to our means of combating a most troublesome disorder. To go into detail would require a separate paper. A full description will be found in the excellent and exhaustive treatise by these gentlemen.[5] Stated simply, the system is one of dynamic and static exercises, gradually teaching the patient to move and hold his head properly. This is no easy task. Great patience, persistence, tact and good judgment on the part of the physician; patience, persistence, courage and confidence on the part of the patient are the requisites for success. While the advocates of the treatment are loud in its praises, not to say enthusiastic in their propaganda, their statements will be found to contain sundry qualifying terms and conservative cautions. I must confess that their reports seem to lack definite statement of complete cures.

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[3] Revue Neurologique, April 30, 1902, p. 351. For a remarkable and wonderfully full discussion of tic, see Revue Neurologique, Aug. 31, 1902, p. 766, et seq.

[4] I have lately learned that the same treatment has been advised by others.

With this, as with all other methods of treating spasmodic torticollis, the great drawback is the patient himself. As I have before indicated, he is generally a neuropath *par excellence*. He is hypersensitive, too impressionable, erratic, poorly balanced. His enthusiasm is transient, his faith evanescent, his disappointment overwhelming, his desires paramount. Although he may be intellectually brilliant, he is mentally puerile; he can not control himself and is most difficult to control. Just when the treatment, whatever it may be, is running smoothly, some whim, feeling, emotion, desire or opinion of the patient intervenes to derange the whole plan and withhold success. Within an hour such a patient's whole mental attitude may be quite reversed. From hearty co-operation with his physician he changes to skepticism, distrust, mutiny, perhaps as quickly to return to allegiance and obedience.

My present opinion is that the soporific treatment, followed by the educational exercises of Brissaud, will be found effective in more cases than any other method of treatment. By means of veronal, trional, chloral and bromid, the drug to be changed every few days, the patient is kept asleep nearly all of the time for three or four weeks. As the waking time increases, he is shown how to practice moving the head slowly, rhythmically and normally in every direction. He is also to practice holding it quietly in any given position. At first the exercises must be executed under supervision. Later he can manage them himself, preferably with the aid of a mirror.

HYSTERICAL MOVEMENTS.[*]

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I understand that in assigning me the subject of hysterical movements it was not intended to include the phenomena of the ordinary hysterical convulsion, but rather to bring up for discussion such motions of hysterical origin as may best be considered in comparison with chorea and convulsive tic. Thus restricted the subject is a very important but very difficult one. I would not undertake to say anything about it had it not been assigned to me.

Certain general principles are applicable to all such movements, and to avoid needless repetition they may first be briefly stated.

The possibility of organic disease must always be considered and the signs that would reveal it carefully looked for in the examination; only when it has been excluded are we safe in attempting to discriminate among the functional diseases.

Hysteria being a functional disease of the cortex, the motions caused by it are always such as may voluntarily be imitated or may occur in a healthy person under strong emotion. In movements that are certainly hysterical we never see single muscles not separately under the control of the will act alone; still less do we see a part of a muscle act alone as in myoclonus. The converse, however, is not true; pathologic movements involving the whole of a group of muscles which normally act together under control of the will are not necessarily hysterical, for other functional and even organic diseases may so act on the cortex as to cause motions of the same character.

The more regularly a movement recurs in time, the greater the probability that it is hysterical. Prominence of ideas or emotions as exciting causes makes it probable, but not certain that the disease is hysteria.

Although the movements themselves seem to be characteristic of some other disease, chorea, for instance, any marked deviation from the mode of onset and course of evolution usual in that disease should suggest hysteria as a possible cause. The presence of other symptoms characteristic of hysteria adds greatly to the probability that the movements in question are hysterical, but it must never be forgotten that hysteria may be added to any other disease.

The most characteristic hysterical movement is a rhythmical oscillation affecting one part. For example, the elbow or any other joint may at regular intervals of time be alternately flexed and extended, the hand opened and closed, the head nodded to and fro or from side to side, the tongue thrust out and retracted, and so on. These motions may be slow and apparently deliberate or they may be rapid; their range may be great or small and is often irregular; it is simply the regularity in time that distinguishes them. In a typical case of this kind the diagnosis is easy, for, excepting post-hemiplegic mobile spasm and athetosis, no other disease causes such rhythmic motions. Post-hemiplegic mobile spasm is easily recognized, because the history and physical signs together indicate organic disease, and even the rare cases of athetosis not preceded by paralysis are not likely to be confounded with hysteria on account of less regularity of rhythm, the age and general condition of the patient and difference in mode of onset and course.

Hysteria, however, may cause motions in which rhythm is less conspicuous, a quick clonic spasm perhaps being combined with tonic spasm. In the neck this may simulate true, spasmodic torticollis, the bilateral form of which constitutes retrocollic spasm. The non-hysterical form of this spasm is a formidable malady which generally begins in the second half of life, only very rarely before thirty; although it is more common in females and may be aggravated by worry and grief, the history does not indicate a definite emotional cause; the onset is almost always gradual and chronic; the spasm is limited to the neck; the disease is not markedly affected by mental treatment and other signs of hysteria are generally absent. In the hysterical imitation of torticollis or retrocollic spasm the patient is commonly under thirty; the history, if complete, does indicate emotion or imitation as an exciting cause; the onset is likely to be acute; the spasm tends to spread to the muscles of the shoulder and trunk; it is markedly affected by mental changes and may occur only in paroxysms; other signs of hysteria are almost always manifest.

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[5] Les Tics et Leur Traitement, Paris, 1902.

[*] Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Next to the rhythmic movements those most characteristic of hysteria are certain highly co-ordinated ones, such as jumping, dancing, gestures of greeting, running about on all fours, acrobatic performances and the like. These may also be rhythmical, and as a large psychic factor is obviously essential to their production the diagnosis of hysteria is at once suggested. In some cases mania may have to be considered, especially if the acts are accompanied by shouting, singing or declamation, and such actions following an epileptic attack, although perhaps hysterical in themselves, must not be mistaken for hysteria alone. The cases of saltatoric spasm described by Bamberger and others, in which the patient makes jumping motions whenever placed on his feet, are regarded by Loewenfeld as mostly hysterical, although increase in reflex excitability has been advanced as an explanation. Any organic disease causing so great an exaggeration of the reflexes would certainly give other signs of its presence. In some of these cases of co-ordinated movements consciousness is impaired and the movement seems to be part of an hysterical convulsion. In others consciousness is fully preserved.

Chorea may be so closely imitated by hysteria as to make the diagnosis difficult; indeed, it is quite probable that the descriptions of chorea have in part been drawn from hysterical cases. Both diseases are cortical, so the motions are such as may occur voluntarily or under emotional stress, and in both the symptoms are aggravated by emotion or attention. In true chorea the motions succeed each other with no regularity as to time, as to the part of the body affected, or as to range of motion.

In hysteria the motions are more regular as to time, being the rhythmic motions already described, but affecting a larger part of the body. They are also more nearly regular in the order in which they succeed each other and in their range. Hysterical motions are also likely to have more of a staccato character as though produced by isolated faradic shocks. Beyond this I know of no rule that does not require qualification. Hysterical movements are more likely to be grouped in distinct paroxysms with intervals of complete or relative freedom from spasm, but they may be continuous and true chorea may almost disappear during rest and quiet, even in the waking hours. A gradual onset, in a child or pregnant woman, without emotion or imitation as a probable cause, with involvement of the face and tongue, with voluntary motions and speech characteristically embarrassed in the early stages and prevented in the later ones, with rheumatism or endocarditis as a complication, would, of course, be proof of the genuineness of the chorea. But an abrupt onset after an emotional disturbance is by no means proof of hysteria, since, according to Gowers, from 20 to 25 per cent. of the cases of true chorea have fright as the exciting cause, and while the onset is generally gradual, beginning some days after the fright, it may be abrupt without any interval at all, the tremor of fright passing directly into the choreic motions. Loewenfeld thinks that these cases will ultimately be separated from those of infectious origin, and this seems probable, but the line has not yet been drawn. Even the presence of unequivocal signs of hysteria, although of great importance, could not be conclusive, since hysteria confers no immunity to chorea.

Hysterical movements of a limb may occasionally simulate Jacksonian epilepsy. As both diseases are cortical the character of the movements and the order in which they spread may be the same in each, and, in the absence of unequivocal signs of organic disease on the one hand and of signs of hysteria on the other, the diagnosis may be difficult. Under the influence of Charcot, Ballet and Crespin made a careful study of the means of differentiation. According to their researches, in true Jacksonian epilepsy, if many attacks come close together, there is a notable rise of temperature, the part convulsed remains more or less paralyzed for from a few hours to a few days, and there is rapid mental deterioration. In the hysterical imitation the attacks are especially likely to be numerous and close together, but there is no rise of temperature, no paralysis and no mental deterioration. Moreover, according to Gilles de la Tourette and Cathelineau, after an hysterical attack in any form, the urine for 24 hours shows a diminution in the total solids, a diminution in the total phosphates and an increase in the proportion of earthy phosphates to alkaline phosphates, whereas after an epileptic attack the total solids are increased and the relation of earthy to alkaline phosphates is unchanged.

Two of my patients have suffered from spasmodic closure of both eyes, occurring especially when fatigued, worried or in any way agitated and often at the most inopportune time, sometimes involving danger. Both cases seemed to be hysterical, as no sign of organic disease could be found, and as the neurasthenia, which was present, could not alone account for a spasm. But as between hysteria and some other form of functional spasm I could not be certain, as unequivocal signs of hysteria were lacking.

In prognosis and treatment we must be guided mainly by the principles applicable to hysteria in general. The disease being functional and having its origin in idea and emotion, a cure is always possible, provided false ideas may be corrected and emotional serenity obtained. On the other hand, hysterical movements are generally obstinate in their persistence; hysterical chorea, for example, has a longer average duration than genuine chorea.

The patient must be encouraged to expect a cure. A straightforward physician may be at a disadvantage in not being ready to promise as much as a charlatan, but he should choose to err, if at all, on the side of cheerfulness and overconfidence, for this is a case where "he who doubteth is damned." The patient should be taught to be vigorous in carrying out his voluntary actions, but to relax the muscles when at rest, and not to attempt to hold back the objectionable motions by force, but rather to let them go on as they may while trying to divert attention to something else. When any action is harmful it ought not to be thought of at all; even resolving not to do it makes the idea of it vivid and tends to start the prearranged mechanism into action. Systematic gymnastic exercises may be made very useful, but they must not be excessive, and their oversight can not safely be entrusted to a "professor" of physical culture. Any local disease or defect causing irritation should be properly treated without magnifying its importance. Impairment in general health may require attention, and the systematic rest cure may be the best means of improving nutrition, but mental influences will always be paramount in importance. If the patient's mental processes can not be happily directed all the rest will be of no avail: if they are so directed the rest will be easy.

DISCUSSION

ON PAPERS OF DRS. SPILLER, PATRICK AND PERSHING.

Dr. Charles K. Mills, Philadelphia, declared that he believed Sydenham's chorea to be due to the action of some infection or toxin on a nervous system exhausted by such causes as the severe cold of a protracted winter, overwork, or a nervous strain of some kind. He said that he believes Huntingdon's chorea to be one of the so-called developmental or family affections. It usually comes on at a certain decade, at about the age of puberty or of adolescence or even before puberty. It begins insidiously, with an imperative or semi-imperative movement, which increases gradually until the whole body is involved, and eventually mental deterioration takes place. Dr. Mills thinks that in many cases of chorea there is a disseminated neuritis in certain stages, just as there may be arthritis or endocarditis. He considers that rest is one of the best methods of treatment of Sydenham's chorea, and that even in the minor cases every attention should be given to hygienic treatment. The most useful drugs are the old-time remedies like arsenic. Dr. Mills has had some success with the use of conium combined with arsenic and with both drugs combined with the rest treatment. He believes that some form of carefully regulated exercise should be used as complement to this treatment. He did not agree with Dr. Patrick that torticollis comes within the domain of the tics.

Dr. B. Onuf, Sonyea, N. Y., mentioned briefly a patient who at intervals for about fifteen years had had blepharospasm and spasm of the internal recti muscles, of the pupil, and of the accommodations. She was unable to read at any distance greater than two or three inches. On ophthalmoscopic examination, the fundus would at one moment be clear and at another become dim, or would disappear almost entirely; after atropinization of the eyes the picture of the fundus became stationary and the patient showed then a fair vision for a distance. Dr. Onuf discovered that about fifteen years ago, when the disease apparently first began, she went to an oculist who prescribed some "white" glasses and that after a time the spasm disappeared. She said that she had worn dark glasses previous to that time. Dr. Onuf concluded that this spasm was due to an error of refraction, giving rise to strong efforts of accommodation in order to see better. The accommodation, on the other hand, caused convergence of the ocular axes and also contraction of the pupil. The thing that puzzled him was how the blepharospasm started. He did not know whether it was a phenomenon of its own or whether it was also due to the refractive error. On studying the case more closely he found that the blepharospasm was not always present, but that it occurred chiefly when the influx of light into the eye was increased very rapidly. For instance, when she took off her dark glasses the spasm would at once set in, while it had been entirely absent while she had them on. He therefore explained the blepharospasm on the ground that the very frequent state of contraction of the pupil, due reflexly to the accommodative spasm or spasm of fixation, made the retina hypersensitive, so that as soon as slight dilatation of the pupil took place the light was much too strong to be born and caused the lids to be closed. The assumption that this was a hysterical condition was confirmed by the fact that she had very marked anesthesia over the entire body with the exception of a small area around the abdomen and another on the inner surface of the knees. The spasm disappeared almost suddenly through some psychic agency, to reappear again, however, after a time, and the fact of its persistency through fifteen years, at longer or shorter intervals, makes it a very interesting case. That refractive errors were really present was shown by the result of examination by Dr. Arthur G. Bennett of Buffalo, who found in both eyes a myopia combined with myopic astigmatism.

Dr. F. E. Coulter, Omaha, Neb., referred to the observations made by Dr. Russell in cases of chorea occurring in pregnancy, in which he reported that the cases most likely to suffer from choreiform movements are those which are pregnant illegitimately, and makes this one of his leading points. Dr. Coulter stated that he has treated several cases of tic with good results. One patient was an old gentleman of 64, the condition being of four or five years' duration. Dr. Coulter used the static spark and suggestive therapeutic measures. Beyond small doses of fluid extract of gelsemium, the patient received no other treatment.

Dr. Robert McGregor, Saginaw, Mich., stated that many of the cases that he has had have occurred from fright. One girl, aged about 10 years, had an attack dating from a night when she saw for the first time the flashing of a searchlight. Another case occurred from an experience with a runaway horse. It is difficult to deduce any conclusive idea as to why chorea should result from fright. Of course, it may be assumed that when such a case occurs there is to begin with an unstable condition of the nerve centers and that the equilibrium is easily disturbed. He has had patients also who became melancholic as a result of fright. In those cases of melancholia resulting from fright the trouble is very often ascribed to malnutrition of the nerve centers in the brain as a consequence of shock, and this explanation may be used to show why chorea results from fright. Dr. McGregor's experience with chorea has led him to believe that in the majority of cases it is due to some toxic or autotoxic influence. He has had cases where the chorea appeared to be due to some article of diet. For instance, in one case, in a girl 12 years of age, who was particularly fond of veal, he treated her for about three months before he discovered the effect veal had on her system. As soon as the veal was stopped she became well and free from the chorea and remained so for about eighteen months, when she again indulged in her liking for veal and again became choreic. This might be regarded as an idiosyncrasy, but idiosyncrasies are factors in these cases.

Dr. Arthur S. Hamilton, Independence, Iowa, stated that the cases of chronic chorea to which Dr. Spiller referred were observed in a service at the State Hospital for the Insane at Independence, Iowa. Dr. Hamilton has been struck with the rather large number of cases seen at the hospital and he has been inclined to think that the disease is possibly not so rare as it is generally supposed to be. In a practically continuous series of 634 deaths, the six cases with which he was working occurred, with two others which he was unable to report. It seemed to him that the name "chronic progressive chorea," as has been suggested by several, is preferable to "hereditary chorea," particularly since, so far as his observation goes, all cases of chronic chorea in the aged, except certain ones said to be associated with gross organic lesion such as cerebral hemorrhage, belong to the same class. If one accepts the term hereditary chorea, it, in a way, requires the production of a history of hereditary predisposition and this, he knows from experience, is not always easy to elicit, even when it exists, and besides, like all other hereditary diseases, this one must have a beginning somewhere and even if the most careful search of the ancestry fails to reveal anything, it can not be said that the disease will not appear in the offspring of the patient when they are sufficiently advanced in years. Nevertheless, hereditary predisposition is often a striking feature and it has been present in all of his cases except two In one of these the disease has occurred in the children, and of the other patient he has no family history. In a patient still living, whom he has had opportunity to study, the history is rather remarkable. The chorea began with the maternal grandmother, who, with two sisters, was affected All the female descendants of these women except two have had the disease and in each instance it is said to have come on after a pregnancy. The two women who constitute the exceptions have never been married. The maternal grand mother had two brothers and these, with all the male descendants of the three women, have always been free from the disorder. That the chorea has always been confined to the female members of the family, Dr. Hamilton thinks, is sufficiently established, but he is inclined to doubt that in each instance it appeared after a pregnancy. It seems to him more likely that, in some of the cases at least, the pregnancy simply caused the symptoms to become worse and in that way enabled the disease to be recognized.

Of the six cases before referred to, three died with a more or less well-marked pneumonia, probably due to aspiration, as swallowing was difficult in all cases. One died of streptococcus infection. In two instances the patients became unconscious and died without apparent cause other than the progress of the disorder. In one patient, 63 years old, autopsy showed extreme atrophy of the convolutions of the brain; in another, who died at 85, the atrophy was certainly not greater than one would expect at that age. In the others, who all died at about middle life, the atrophy was fairly well marked. Reduction in the number of cortical cells was quite pronounced in some instances and intracellular changes have been quite common, though many of these are such as are seen in other conditions and, doubtless, they are frequently the result of the progress of the disorder rather than its cause. These changes are such as chromatolysis, displacement of the nucleus and pigmentation of the cell. Round-cell infiltration of the perivascular lymph spaces was present in at least one case. In one case—the patient of whom he has practically no history except that his chorea had been present for many years, and in whom the movements were much worse on one side than the other—the cells of all parts of the cord were more or less diseased but in the anterior horns the degeneration was much more marked than elsewhere and in one anterior horn almost no cells could be found. Bodies which appear a good deal like the so-called chorea bodies were quite common in this cord.

DR. S. M. CROWELL, Charlotte, N. C., emphasized the importance of suggestive therapeutics in the treatment of this condition. He said that he thinks that a working knowledge of psychology should be required of all graduates in medicine.

DR. D. J. MCCARTHY, Philadelphia, stated that he made a careful examination of one case of Sydenham's chorea, in which the microscopic examination of the brain showed very marked chromatolysis. There were no hemorrhages, but very marked congestion of the gray matter of the spinal cord and cerebral cortex. He examined three cases of Huntingdon's chorea and found in all three cases a granular degeneration of the cells of the cortex, a very marked atrophy of the cerebral cortex and changes in the cerebral tissues, practically the same thing as those found in general paralysis. In that case the patient showed delusions of grandeur, tremor, and the speech very closely resembled that of paresis. He has also had other cases of Huntingdon's chorea presenting the same symptoms. In one case he used the suggestive treatment for two or three months and the patient was able to gain sufficient self-control to be able to go back to his work, which was that of a carpenter, and worked at his trade for several months, after which he became very much worse.

An interesting case in which the cerebellum was probably involved was that of a child, the eldest in a family, and which was reputed to have weighed 20 pounds at birth. The labor was prolonged, and at the age of 16 months the child developed epilepsy. The patient was admitted to the Philadelphia Hospital with marked chorea and delusions and the diagnosis of chorea *insaniens* was made. Choreiform movements were present. Examination showed marked depression on the occiput and very marked nystagmus. The condition persisted and, if an epileptic attack would develop, the choreic symptoms would become very severe, last one or two days and then clear up. In the interval between the attacks choreiform movements would occur. A very interesting case of tic was that of a little girl who developed the habit of moving her ear voluntarily; she developed a habit spasm affecting these muscles and the ears would move up and down every two or three minutes, because of the habit chorea.

In connection with Gilles de la Tourette's disease, there is a condition due to the excessive use of tea and coffee which gives rise to distinct difficulty in reading and interferes with the use of the eyes. This condition is a condition of intoxication from the use of tea and coffee and is not a condition of chorea at all; it usually clears up with removal of the intoxication and also from rest of the eyes. It is manifested at first by an occasional fibrillary tremor, which increases until practically all of the individual fibers are in active motion—an irregular orbicular-electrical chorea. There is practically no movement of the lids, merely the constant movement of the individual muscle fibers. The patient usually complains of a feeling of tension about the eyes and the contractions become very annoying. This local phenomenon about the eyes corresponds to the electrical choreas, myoclonias, etc., and, like them, is a muscular manifestation of an underlying intoxication.

DR. JOHN PUNTON, Kansas City, Mo., emphasized the importance of suggestive therapeutics in the treatment of tic. He cited the case of a Denver saloon keeper, who was on his way to Philadelphia to be operated on for the sixth time for tic. He was intercepted by some friends and advised to consult Dr. Punton. His history was of tic of the most marked character, and the scars on his face indicated that he had been operated on. He was under the influence of morphin and was taking six grains a day; he also had a saturated solution of cocain with which he bathed his gums every few moments. The case appeared to be a very difficult one, as the paroxysms seemed to be almost continuous, and the standing of the various surgeons who had operated on the patient led Dr. Punton to decide that there was not much that he could do. The patient also said that before leaving Denver he had consulted Dr. Pershing, who advised operation. A surgeon was consulted in reference to extirpation of the gasserian ganglion, but the patient would not consent to that operation. After keeping him under observation for a week, Dr. Punton lost sight of him for about three months. The patient was then purchasing a ticket for Denver, and claimed to be cured. He said that he had been cured by a quack in Kansas City, simply by "magnetic healing." Dr. Punton said that this case showed the marked influence of suggestive therapeutics in tic. The case surprised him, and now before he advises surgery he always tries to see if he can influence such conditions by suggestive therapeutics.

DR. JOHN H. W. RHEIN, Philadelphia, reported the pathologic findings of a case of Sydenham's chorea which came under his care recently. The patient, a boy of 12, died during the second week of the second attack of the disease, the result of a sharp attack of pneumonia of two days' duration. By an examination of the specimens so far Dr. Rhein has been able to demonstrate the presence of capillary hemorrhages in the cortex, and in the muscle a few fibers were found in which there was loss of striatum and slight vacuolation of the muscle substance. Dr. Rhein stated that he has had the opportunity of studying a great many cases at the Orthopedic Hospital and Infirmary for Nervous Diseases in Philadelphia, and he believes it can be concluded that all reflexes are increased in a great many cases and diminished in a certain number, and that if there is anything characteristic at all in reflexes it is that they are capricious. He has seen a great many cases treated by arsenic and has had an opportunity to study the histories of a great many more (probably over 1,000 in all), and is forced to conclude that the development of neuritis during treatment by arsenic is very rare indeed. Choreiform movements may exist in certain rare cases of locomotor ataxia, and two years ago he reported a case of this character at the Saratoga session of the American Medical Association.

DR. WHARTON SINKLER, Philadelphia, said that he thinks that one of the reasons why there is so much diversity of opinion of the nature of chorea is that there is a tendency to include under one head many varieties of the disease, some of which have little in common except that one of the symptoms consists in movements of an irregular and spasmodic form. It must be remembered, too, that there are many diverse causes of chorea. Some cases of Sydenham's chorea may be of infectious origin, but they are not by any means all of infectious origin. One could not for a moment believe that cases of chorea induced by fright, as many are, could be due to infection, nor can the numerous cases due to an overstrain of study or school be of infectious origin. There are also met with several types of Sydenham's chorea in which the symptoms vary to a marked extent, so it seems important that in the study of chorea and of choreiform affections one should discriminate more fully between the different forms of the disease which are met with.

Dr. J. A. Hodges, Richmond, Va., emphasized the causal relation of rheumatism and chorea. Having been impressed as a student with the theory that this disease is almost inseparably connected with rheumatism as a causal factor, Dr. Hodges expected to find it in a great majority of his cases; however, during an experience of ten years he has not seen a single case of chorea associated with rheumatism. Likewise, he has only seen two cases suffering with heart lesions and only two that were supposedly due to toxins, though he is not absolutely positive about these, as neither case died and he did not have the opportunity of extending his investigations into the definite cause of the disease. Many neurasthenic conditions, he believes, may be the cause of this disease. Dr. Hodges referred to the calmative effect of iron on muscular tissues. In a number of cases in which neither small nor large doses of arsenic would control the spasmodic manifestations, iron caused marked improvement.

Dr. Albert E. Sterne, Indianapolis, stated that a great many cases of tic of the convulsive sort have absolutely failed to be benefited by any method that he has ever employed. The older the patient is the poorer the prognosis becomes. The prognosis is very much better in children and decreases as the patients advance in age. There must be a fundamental weakness for the manifestations exhibited in chorea, because the same elements which produce chorea in these individuals have absolutely no effect on persons not predisposed to the condition through fundamental nervous weakness. He believes that there is a very distinct relationship, in a large percentage of cases, between Sydenham's chorea and acute arthritis. It is perfectly natural in a predisposed case that there be a joint manifestation which is frequently overlooked. He has seen many cases beginning in chorea which have developed heart disease only, or arthritis and endocarditis, successively. Chorea may be either the first or the last in the trinity of diseases. In the case of a child which had injured itself by cutting with a piece of tin, the wound would not heal, but remained open, and the child successively developed arthritis, endocarditis and chorea; all disappeared under treatment, but again she developed arthritis, endocarditis and chorea, and died. Dr. Sterne could not recall a single case where tuberculosis was associated with chorea.

Dr. W. C. Jones, Walnut Springs, Texas, declared that in his state there is a great deal of chorea and very little rheumatism, and still less cardiac trouble.

Dr. Wm. G. Spiller, Philadelphia, briefly referred to a case which at first was under the charge of Dr. Mills and which then passed under his care. The patient was operated on, the spinal accessory nerve being resected and two inches removed. The man continued to jerk his head, and a Keen operation was performed and the nerve supply of the muscles of the back of the neck and finally the nerve supply of the corresponding muscles on the other side of the neck cut also. The patient left the hospital very much improved. Dr. Spiller recently saw a patient who had convulsive movements of the muscles of the neck and of the face, who was discharged from the hospital [illegible]red after resection on each side of the spinal [illegible]sory nerve, but he stated that he failed to see how [illegible]ld have [illegible]ed the movements unless by suggestion [illegible] mal[illegible] re[illegible] senile chorea as a more serious con[illegible] in cases of [illegible] chorea and thinks it may be di[illegible] [illegible] reported that [illegible] the senile forms from Huntingdon's chorea. He thinks that at times there is a relation between Sydenham's chorea and rheumatism but that it is often much exaggerated.

Dr. Hugh T. Patrick, Chicago, confirmed Dr. Spiller's statement that implication of the muscles of the eye is very unusual in chorea. Aside from occasional choreiform rolling of the eyeballs, he had never seen marked implication of the eye muscles until recently. A few months ago he saw a boy of 5 with very severe chorea, confining him to bed, and the eyeballs were in constant, irregular, jerky motion. He had never seen anything approaching it except in a few cases of very grave organic disease, and when he first looked at the boy he supposed he had to deal with some serious lesion. The case, however, proved to be a typical one of Sydenham's chorea, and the child gradually recovered. In the treatment, he favors very large doses of arsenic. His opinion is that large doses will produce effect when smaller ones will not. He has had only one case of arsenical multiple neuritis caused by administration of the drug in large doses. That he thinks was not all his fault. He was giving arsenic at that time hypodermically in large doses, which he has since stopped. He went away on a vacation and the case, he thinks, was not watched as carefully as it should have been He always watches the knee-jerks with extreme care, and if he sees any sign of their disappearance or weakening, he stops the drug at once, as this is a sign of beginning neuritis. It never occurred to him to treat a case of chorea by hypnotism.

Dr. Howell T. Pershing, Denver, stated that he believes in large doses of arsenic for chorea, but that he has long since ceased to use Fowler's solution. He now gives cacodylate of sodium in a 1 to 60 solution, which corresponds in arsenical strength to Fowler's solution. It can be given in doses up to 20 and even to 30 minims three times daily without causing any gastrointestinal disturbance. He has had no cases of arsenical neuritis since he began using it, five years ago. He stated that he has never recommended an operation in any case of that kind, though he has been present at and has consented to such operations.

THE RADICAL OPERATION FOR EMPYEMA OF THE FRONTAL SINUS.*

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NEW YORK CITY.

The practice of rhinology some years ago was in great danger of becoming monotonous. At our conventions the papers on reflex neuroses, adenoids and deviated septa were too numerous and were discussed over and over. What a pleasant change has taken place since, and how differently we treated "nasal catarrh" in the past from what we do now! Each case of atrophic rhinitis and of ozena is a study in itself, and every disease of the accessory sinuses means good judgment and labor. But just this change has lent new interest to our work. Foremost in this respect are the affections of the frontal sinus.

In the paper which I have the honor of presenting to you, principally the chronic forms of suppurative frontal sinusitis are dealt with. In order not to be misunderstood in my conclusions, it will be wise to state from the start that by far the great majority of cases improve under intranasal treatment. And thus the patients are enabled to live for many years, now and then suffering little or more discomfort. In other patients the symptoms are somewhat more pronounced, but many would rather endure them than to undergo a serious operation.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Before we decide on radical treatment by external operation we should exhaust all means possible to afford relief by intranasal procedures. It is an experience common to all of us that acute cases readily yield to a mild treatment, the exceptions only proving the rule. And I have nothing to add to this, excepting one case that occurred in the practice of a well-known colleague in a neighboring city.

Case 1.—On Feb. 20, 1893, I was called to see Mrs. ——, who had been treated a week for typhoid fever. She had fever ranging between 101 and 102 F., and suffered greatly from a constant deep-seated pain over the right eye; constipation was also present. From the start she insisted on consulting a rhinologist, but the attending colleague objected on the ground that the frontal headache was due solely to the typhoid fever. Finally he was discharged, and his successor called me in. The pain was so pronounced that one could hardly touch the affected parts. The patient was unable to sit up in bed, and under the circumstances the examination was rather difficult.

Examination.—I found the spleen somewhat enlarged, no roseola and no pain over the abdomen. Anterior rhinoscopy revealed a highly congested and enlarged middle turbinal, between which and the septum, after cocainization, pus oozed out.

Treatment.—Removal of the anterior ethmoidal cells, followed by washing out of the frontal sinus, which was the seat of the acute empyema, brought great relief to the patient at once. Subsequent daily irrigations of the sinus and applications of silver nitrate removed all difficulties within five days, the patient being completely restored to health. The shortsightedness of the first attending physician is incomprehensible.

During and after an epidemic of influenza, we have all seen cases that yielded to mild treatment. I am fully convinced, however, that many a case failed to improve and puzzled the attending physician by simulating acute mania or the like. But we are not to discuss these today, and I shall now pass to the chronic forms of frontal sinusitis.

CHRONIC FRONTAL SINUSITIS.

Diagnosis.—The diagnosis of these cases is not always simple, and I wish we had some safe method by which we could always determine at the first examination whether or not an empyema of the frontal sinus exists. Of the different symptoms mentioned in text-books, the tenderness over the sinus on slight or strong tapping or on pressure was absent in some of my most characteristic cases, while in others it was quite marked. Asthenopia was sometimes a prominent feature, and I agree with H. Manning Fish that this sign comes more in evidence when the flow of pus from the sinus is temporarily checked.

Transillumination is mentioned here only on account of the peculiar behavior in one case. This was a gentleman with distinct empyema of the right frontal sinus, who was under my observation for nearly four years. The flow of pus continued day after day for years, the middle turbinal was absent, and one could easily reach with a probe far up into the sinus, which apparently extended a good distance above the eyebrow. Irrigation of the sinus was also very easy. Now, in applying the electric lamp for the purpose of transillumination, a large, bright area could be seen on the affected side, which was in strong contrast to the healthy side, which appeared much darker—just the opposite to what was to be expected. The affected sinus was apparently much distended, and, since the flow of pus was no longer obstructed and the sinus emptied constantly, there was nothing to prevent the rays of light from penetrating the sinus walls and producing the translucency.

The most reliable evidence is afforded by probing and washing out the pus from the sinus. This is by far the safest way of reaching a diagnosis. The probing itself is difficult. Indeed, it is rarely possible to enter a sinus by passing a probe along the frontonasal duct, and I agree fully with Charles H. Knight[1] when he says that "one is quite likely to get into the anterior, or fronto-ethmoidal cells, or even altogether fail to find the orifice of the canal." A perfectly thorough exploration of the sinus cavity can not be made with the probe. We are handicapped in many ways by the narrowness of the field in which we have to work, by copious hemorrhages, etc. Even on the cadaver it is impossible to do this or any operation completely through the nose. The reappearance of pus in the middle meatus after syringing the antrum of Highmore signifies that its origin lies higher.

Another important point arises now, as Hajek correctly says, viz., we have to decide whether the pus comes from the frontal sinus alone, from the anterior ethmoidal cells discharging into the infundibulum, or from both. It is sometimes extremely difficult to decide this, and mistakes in this direction are not infrequently made.

CHOICE OF METHODS OF TREATMENT.

Having reached a definite conclusion regarding the condition of the frontal sinus, what are we to do? Are we to treat our patients by intranasal methods, and how long are we justified in following up that course?

It is but natural that we should attempt to establish free drainage intranasally. If we succeed in that way by simply washing out the sinus, we run no risk in continuing this treatment for some time. But in most cases we have to remove the ethmoidal cells, and herein lies the great difficulty. The ethmoidal labyrinth, as Hajek correctly points out, can be freely opened through the nose, but not totally resected. The cribriform plate is dreaded, as a perforation of it will lead us directly into the cranial cavity.

Although, in a discussion on this topic before the Section on Laryngology of the New York Academy of Medicine, several colleagues reported that they had met with this accident and the patients nevertheless recovered perfectly, still it is at least unpleasant and does not bring the patient nearer to a cure. Still, we can give a good deal of relief to the patient by intranasal methods and are justified in continuing it—of course, with the consent of the patient—until threatening symptoms set in. But do not let us forget that such an empyema is in some instances a constant menace to the patient, and that other infections may arise from it. Permit me to quote the following case, which, though no positive proof of that theory, is nevertheless very suggestive:

Case 2.—Mr. R. N., aged 45 years, had the grippe four years ago. Directly afterward he began to suffer from "nasal catarrh" and headache. Two years later he caught a cold and became hoarse, which condition lasted for several weeks. From that time on he occasionally suffered with sore throat. He came to me on account of hoarseness, which hindered him in business.

Examination.—On my first examination a dyspnea and a constant cough, with long inspiratory stridor, was noticed; little expectoration. In the larynx I found perichondritis of both arytenoids, which was the cause of the dyspnea. Examination of lungs and sputum, negative. In both nostrils there was marked atrophy of all structures; he removed masses of scabs by daily syringing. Probing and washing out of both frontal sinuses was done immediately, and at once he told me he had less difficulty in breathing. From that time on I frequently repeated irrigation of the sinus, and then the patient generally felt the same relief. But this was only a subjective sensation. Objectively, in the discharge from the frontal sinus, tubercle bacilli were detected at a time when the findings of the sputum were negative. Later on the sputum also showed tubercle bacilli, and finally physical signs of tuberculosis developed over the lungs. Although there is no direct proof of a communication between the affections of the frontal sinus and the larynx, it is *only natural to associate both under the same etiology*, as the possibility of a lymphogenetic infection of the latter from the sinus is very great. Therefore, I proposed to perform tracheotomy and immediately afterward do radical operation on both frontal sinuses. This seemed to me the only rational way of rendering a cure possible. The patient, however, lost two valuable months in delaying the operation and afterward disappeared.

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[1] Knight: Diseases of the Nose and Throat, p. 94.

Formerly a radical operation was considered necessary only when one of three symptoms was present, viz., brain pressure, swelling of the frontal region due to expansion of the frontal sinus, or dislocation of the eye, or all three. Since the genial Berlin surgeon, Dieffenbach, first performed that operation we have changed our views as to its indications. Nowadays, after treating the patient for several months and exhausting all kinds of intranasal treatment, it is our duty to propose an external operation under the following conditions:

1. When the purulent discharge is copious and the patient apparently loses ground.
2. When the discharge is fetid and combined with persistent headaches.
3. When the above-mentioned "classical" symptoms are present.

A combination of any of these symptoms naturally makes the indication so much more imperative.

After coming to a conclusion as to the necessity of an operation another difficulty arises, viz., which method is to be followed? Let me emphasize at once that there is no operation that will answer all purposes. Each case has to be treated individually, and each operation requires special rules.

ANOMALIES IN THE SINUSES.

The more I operate in this field, and the more sinuses I open in the cadaver, the more do I see that the variations in the size and shape of the frontal sinus are extreme. It is not very unusual to find the sinus entirely absent, or only rudimentary on one side and very large on the other. In 24 cadavers which I dissected I have found the sinus absent on one side three times. Repeatedly a cell was found between the two sinuses. In one case this cell extended quite a distance up on the left side, although there was no sinus at all. On the other side the sinus extended sharply from the median line all along the supraorbital margin.

A. Logan Turner,[2] our esteemed guest from Edinburgh, in his comparative studies found that the absence of one or both sinuses was not so very uncommon as may be thought; in other words, there was no cavity extending into the vertical portion of the frontal bone "This, however, does not exclude the possibility of the existence of a small frontal air space between the two laminæ of the orbital plate." Whether this air space is identical or similar to the above-mentioned cell which I found I can not decide, but it is probable. The difference in the size of the sinuses is sometimes very pronounced. More important, however, in case of operative intervention, is the difference in their height. In many cases the upper wall of the sinus does not even reach the supraorbital margin. This I consider of such extreme importance for Killian's operation that we always should be on our guard against any such occurrences. Mistakes can often be avoided, but certainly not always. We shall speak about this later on.

METHODS OF OPERATION.

A colleague who has done good work along this line is Arthur Hartmann[3] of Berlin. In his atlas he recommends an operation which is very much like the one we now frequently use.

One of the first to perform this operation radically and on a larger scale was Jansen. His incision along the eyebrow to the supraorbital notch is well known. The bony wall is opened just above the internal angular process of the frontal bone. At this point the bone is thinner than on the anterior surface and can be easily perforated. Then he removes the lower wall of the sinus, and in large cavities the edge of the anterior wall, and closes the external wound. There is no doubt that with this method the ethmoidal cells can easily be reached, but the exploration of the frontal sinus is not so easily accomplished.

In this respect the method of Riedel, who removes the anterior and orbital wall, offers greater advantages. but most authors agree that the cosmetic effect is a bad one. I omit here the description of the well-known methods of Ogston-Luc and Kuhnt, since they have been discussed frequently. Kuhnt's method is surely one of the best, but lesions of the infundibular cells of the labyrinth are not accessible. This is a great drawback, as the fontal sinus affections are almost invariably combined with diseases of the ethmoidal cells. According to Hajek's and my experience, the nasofrontal duct is so intimately connected with some of the ethmoidal cells that, in all probability, we can expect an affection of the latter when the frontal sinus is diseased.

Killian's Operation.—Killian of Freiburg, in order to reach all diseased parts, establish perfect drainage and make the cosmetic effect perfect, modified the former methods in vogue and claims excellent results for his own. As his procedure does not seem well known on this side of the Atlantic, you will permit me to give you a short résumé of it:

Killian's method is as follows: 1. Start incision at the temporal end of the eyebrow, cutting directly through the latter to its median end; extend the incision in a graceful curve around to the side of the nose, and cut through the *middle* of the nasal process of the superior maxilla.

2. Incision of the periosteum about 5 to 6 mm. above the supraorbital margin and parallel to it, followed by a second incision through the periosteum exactly in the center of the frontal process. His idea is to remove the anterior and the lower wall of the sinus with the preservation of a bony bridge, believing that this gives an excellent cosmetic appearance after the operation. In the line of the first periosteal incision he outlines the upper border of the osseous bridge he intends to preserve by light taps with the chisel.

3. Opening of the frontal sinus, either above or below the bridge and probing.

4. With chisel and hammer a furrow is made along the first periosteal incision, and principally with bone forceps the entire anterior wall is removed, followed, of course, by curetting of all diseased mucous membrane.

5. The supraorbital margin is next outlined from the floor of the sinus, and the whole floor resected, thus leaving a part of the bone about 5 to 6 mm. wide.

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[2] A. Logan Turner: The Accessory Sinuses of the Nose, Edinburgh, 1901.

[3] Atlas der Anatomie der Stirnhöhle, Wiesbaden, 1900

6. Resection of the frontal process of the superior maxilla and the rest of the floor of the sinus.

7. Resection of the anterior and middle ethmoidal cells and the respective parts of the middle turbinal.

8. Formation of a flap from the rest of the nasal mucosa, so that there remains a permanent and large opening into the sinus.

There is no doubt but that this operation is the most radical one, and that it apparently offers the best advantages for a permanent cure. But even this method will have to be modified to suit every variety of cases. if such a thing will ever be possible. For the present, I am not ready to recommend it for all cases; and, indeed, opinions differ widely as to the removal of the various parts.

While Riedel advocates the resection of the entire anterior and lower wall and Killian the same with the retention of a small bridge, Jaques leaves the vertical part of the bony wall intact, but removes the orbital part totally. Burchardt,[4] a former assistant of B. Fränkel's, says: "It is contrary to general experience that cavities do not heal without partial removal of the orbital vault." I confess openly that so far as my experience goes, we can not as yet lay down such general rules.

In one case the whole anterior wall was affected and had to be removed *in toto*. On the other hand, in a case which had been operated on nine months previously by a general surgeon, all the symptoms had returned. On opening the sinus I found the lower wall intact but necrotic, and on removing it there was seen near the outer angle of the orbit a small pocket which was almost entirely partitioned off from the rest of the sinus. I have observed similar formations on the cadaver. It must be admitted that I could not have seen this pocket without following Killian's technic, and it is evident that in this case a cure could never have been effected without removing the lower wall.

Siebenmann of Basel praises Killian's operation as an advance in unilateral affections, but claims that his cosmetic results in double sinusitis were not good where the sinuses were very deep anteroposteriorly We shall have to await his further communications before being able to judge of his proposed modifications.

Before opening the frontal cavity we are very often misled as to its dimensions. Even when we succeed in probing the sinus, we are mostly not able to judge of its height. We may believe that the sinus reaches upward above the eyebrow, and in trying to operate after Killian and open the sinus in this manner. we may get into the cranial cavity. Such a case has occurred in my own practice, and according to private information in that of others as well. It may be briefly mentioned here as an illustration and a warning to others:

Case 3.—Miss ——, aged 45, born in England, consulted me on account of a constant purulent discharge from the nose and severe headaches.

Examination.—Both middle turbinated bodies had been removed, and it was easy to probe both frontal sinuses, as well as to wash them out. The flow of pus was very great. I recommended a double radical operation. As this had been proposed already by another colleague, she consented readily, being happy to be freed of her troubles.

Operation.—In the presence of several colleagues, I tried to follow Killian's method exactly. After marking the bony bridge, part of the bone above it was chiseled away, when to our surprise the dura mater presented itself. The patient made a rapid recovery and left the hospital, the wound being entirely closed. I have not seen her since.

Now, what had happened here? We either had probed an ethmoidal cell, or there was some communication with the sinus of the other side, which was the sole cavity discharging the pus. Or we were misled in judging the distance which the probe had entered. I am inclined to believe the first mentioned.

The variations in the size of the sinus are so great that we should enter it only at the safest point, and that is not above the eyebrow. The most extreme variations I have found in my autopsies on 24 cadavers I shall report here. The first one was in a male cadaver, apparently of Indian type. Here the left sinus that did not reach beyond the middle line was very much larger than the other. Its greatest height near the septum amounted to one inch. while on the other side it did not reach the supraorbital margin and was hardly half an inch in height. The second specimen (Fig. 1) is a characteristic type of another variety. The right sinus in this specimen is quite small, similar to the former case, while above it is a large cavity that belongs to the left sinus. You will observe I commenced Killian's operation on that sinus; the bridge has been prepared and a probe is inserted from the smaller lower section of the sinus into the large upper one, which extends further toward the external canthus of the right eye than of the left.

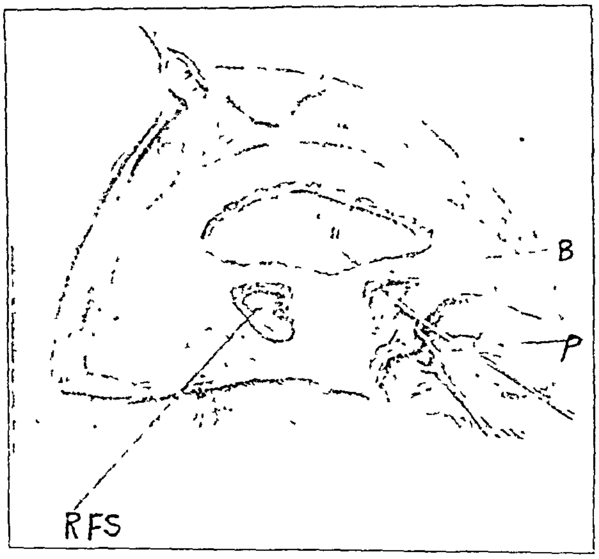

Fig. 1.—B, bridge between the two parts of left frontal sinus; P, probe in left sinus; RFS, right frontal sinus.

Now, if we should have made an opening on the right side above the bridge, we would, in the first case, have entered the cranial cavity, and in the second we would have opened the sinus of the other side, neither of which was desired. At any rate, the above experience has taught me a lesson, viz., never to open the sinus first above the eyebrow. I always start the opening now near the upper inner canthus. Then I can probe the sinus readily and measure its dimensions. This is the only safe way to proceed. My experience on the cadaver has taught me the same, and I would advocate it here emphatically.

After opening the sinus as mentioned, I can easily probe my way and then prepare the bridge from above, if that be feasible. If the sinus ends upward at the eyebrow, we must naturally be satisfied to remove only the lower wall and then there can be no bridge. But when the sinus is large enough I believe in preserving a bony bridge, thus improving greatly the cosmetic effect. It must be mentioned, however, that in some exceptional cases the bone is so affected that it is not advisable to leave any behind. In spite of this, the cosmetic effect is sometimes good, as in one case of mine in which the entire anterior wall had been removed and in which no perceptible depression was left. In another case of mine the bridge broke off during chiseling, but here, too, the result was so good that you can hardly say which side was the affected one. Still, we should not rely on such fortunate occurrences, and be on the safe side by leaving a bridge. The main thing in all these cases is to preserve the periosteum and let Nature do the rest.

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[4] Arch. für Laryngologie, vol. xv, p. 496.

If during the operation the horizontal incision alone does not give enough space, I do not hesitate for a moment to make another vertical incision after Kuhnt. This is, in men especially, of no importance, and makes the operation easier.

Regarding the removal of the frontal process of the maxillary bone, it is usually easier on the living than on the cadaver, where the bone is healthy and much more resistant. I would sound a note of warning to be careful lest a fracture of the maxillary bone might occur in the living, as happened, on the cadaver, to one of my assistants.

Regarding the formation of a flap for the purpose of keeping the passage open from the frontal sinus to the nose, I must say that this is a very good plan, but I have seen a case where there was no mucous membrane that could be used for that purpose. It was so atrophied that it could not be utilized.

Whatever operation we perform, we should not forget that we are treading on dangerous ground, and that with or without our fault an accident may occur. The case of so experienced a man as Castex of Paris, who lost a patient from meningitis whom he had operated on for empyema of both frontal and maxillary sinuses four weeks after entire recovery from the operation, should be a warning to us.[5]

Having finished the operation, I now close the external wound after putting in a drainage tube that can be removed at will. The primary healing of the wound is preferable, as healing by granulations often, or perhaps always, causes a depressed cicatrix, which is more or less conspicuous. The more we leave the external wound alone, the better will be the appearance afterward. And again, the more we plug the cavity from the outside and the longer we try to keep it open, the more marked will be the disfigurement.

Since the reactive secretion is practically *nil*, no tamponade of the cavity is necessary, and the wound generally heals *per primam*. Sometimes a slight retention of serous fluid causes a rise in temperature. This happened in the case of a young Greek. On the fourth day after the operation he felt pain on touching the wound near the inner canthus. His temperature had varied between 98.6 and 100, when on the fourth day it rose to 104.6. The inner canthus was a little more swollen than on the previous day. On opening it simply with a probe, washing it out with a saline solution and keeping the wound open for a few days, the patient quickly recovered. This place, i. e., the region of the inner canthus, seems to be a favored one for the retention of secretions, as abscesses will develop here also. These abscesses are sometimes of no importance, but usually a spontaneous reopening of the wound will follow with the formation of a fistula. Such a fistula will seldom close, no matter what we try. It means, as a rule, a new operation, and indicates that the first one was faulty in some way. I imagine we all have had such cases, and the wider our experience grows the less frequently will they be encountered. I am convinced that Killian's method is a step further in the direction toward an ideal operation, but it is surely not ideal yet.

And now, permit me to report the histories of some of the most significant of my cases, and I beg your indulgence for narrating first a case on which external operation had not been performed. It may be illustrative of a series of similar cases.

Case 1.—Mr. J. K., aged 60, native of Austria, came to me on account of throat trouble on Nov. 2, 1899. On questioning him, he told me that for the last three years he had had a tickling in his throat, which had grown worse during the last month. He expectorated profusely and his appetite was failing. He had been operated on for nasal polypi about two years before.

Examination.—I found a postnasal catarrh and numerous polypi in both nostrils. The treatment was carried out accordingly, but the patient steadily grew worse. He had lost 25 pounds in weight, had no appetite at all, and slept very poorly.

Treatment.—As pus continued to flow in large quantities, the middle turbinal was removed, and then granulations from the anterior and middle ethmoidal cells curetted. I did this in the beginning quite often and also curetted the lateral cells with a curved ring-knife. The tissues were so friable and the adjacent orbital wall so thin that I always dreaded perforation of the latter. Afterward I was also able to scrape out granulations from the frontal sinus. Only after that was accomplished symptoms commenced to improve. The tissues broke down like paper, but there was no sign of any luetic infection. Although the patient was, and still is, suffering occasionally from dizziness, bad taste in the mouth and consequently loss of appetite, he has refused any radical operation up to the present time. When these symptoms show up I curette the nose and free him of all the accessible pus; then he goes to the country and feels better for some time, until the symptoms reappear. I have had him under observation for five years, and he feels grateful for the relief obtained thus far.

Case 2.—Mr. E. A., aged 39, a musician, called on me first Feb. 4, 1898. He complained of a cold in his head which had lasted for several years. Fifteen years ago, while in South Africa, he had contracted lues, had afterward married, and his wife had given birth to a healthy child.

Examination.—His nose was clogged with a mass of foul-smelling scabs and crusts, after the removal of which a large perforation of the septum with ulcerations on its border could be seen. The left lower turbinal was atrophied, and on the anterior portion of the middle turbinal bare bone could be felt.

Treatment.—This was scraped away, and gradually the whole turbinated body removed. The antrum was washed out repeatedly, and always quite a mass of pus and débris brought away. But pus continued to flow from further up. After curetting away a mass of broken-down tissue I could finally pass a probe into the frontal sinus (June 14, 1898). There was no doubt that an empyema was also present here. It need hardly be mentioned that antisyphilitic treatment had been initiated the first time the patient had called.

The man led a rather irregular life, and disappeared for three months. On Sept. 18, 1898, he returned to me and said he had been playing in a country hotel and had used the potassium iodid sol. 100 drops t. i. d., but had given up the inunctions for obvious reasons. An edema had appeared over the left eye, and the patient felt some pain in that region. Otherwise he considered himself perfectly healthy. I must confess I was not very anxious to do a radical operation in this case, as I was doubtful about the outcome, and I tried my best to bring this process to a standstill by intranasal methods and by pushing the antiluetic treatment to its limit. It seemed as if we were to be successful. But our friend then absented himself again, and returned only when the pus had made an opening through the forehead. Without general narcosis, I enlarged this opening and found an exceptionally big cavity. It reached above the eyebrow surely one inch and extended outward as far as the orbit. There were several sequestra, which were removed, and all the affected parts touched with nitrate of silver in substance. Drainage into the nose was then established and the wound dressed without suture. I am glad to say it healed very nicely within about three weeks and that the scars on the forehead are not very conspicuous now.

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[5] Intern. Centralbl. f. Lar., p. 166, 1904.

CASE 3.—Mr. C. M., aged 40, a wholesale merchant, consulted me, with quite acute symptoms. He told me he had been unable to breath well through his nose for the last three or four years. Whether there was pus present during all that time he did not know. Three months ago nasal polypi had been removed in several sittings by a colleague. After the last séance he had "dreadful" headaches. But later it seemed as if something had broken, and an abscess opened, and he then felt easier. About ten days ago this pain returned. It was so severe that he could not sleep at all. For the last two days he felt, on the contrary, like sleeping all the time, although the pain had not left him. He was somewhat dizzy, so that his wife had to lead him into my office, his mind did not seem to be perfectly clear, and he answered questions put to him rather slowly and hesitatingly. Temperature, 101 F. No appetite.

Examination.—On examination I found the parts over the right frontal sinus swollen, and the right eye somewhat closed. Great tenderness to touch at supraorbital margin. Transillumination showed shadow on the right side. In the nose there were several polypi and a mass of pus. Considering the seriousness of the symptoms, I advised an immediate radical operation, but the patient preferred to wait. This gave me an opportunity to remove the polypi. I was not able, however, to probe or syringe the frontal sinus, as the slightest touch further up above the middle meatus caused a fainting spell. Nevertheless, the diagnosis was beyond doubt. He was growing weaker, felt like vomiting, etc., when, after eight days, his family consented to an operation.

Operation.—Oct. 4, 1902, 7 a. m. Radical operation after Kuhnt. Eyebrows shaved, horizontal and vertical incision. Periosteum drawn upward and downward; sinus opened above the eyebrow. The cavity, which was filled with pus and granulations, was not very large. The entire anterior wall was affected, and consequently removed, and the rest of the cavity thoroughly scraped out. Drainage into the nose; Myle's tube inserted and sinus packed with gauze. Patient made an uneventful recovery and left the hospital on October 17. The wound was kept open for two weeks longer, when it was allowed to close, which it did within a few days.

Result.—Although the entire anterior wall was taken away, there is hardly any visible difference between the two sides, with the exception of a small retraction where the wound had been drained. I have seen more marked retractions in other cases, and find it best now to close up the external wound immediately following the operation.

One of the most interesting cases I have seen is the following:

CASE 4.—Mr. O. W., aged 59, in the wholesale business, has a most peculiar anamnesis. He had been suffering for the last ten to fifteen years from headache on the left side. It used to "creep up and all over," and then was most severe under and behind the left eye.

History.—His digestion has always been poor, and grew worse two years ago after he had an attack of sunstroke. He became very nervous and sometimes felt like jumping out of the window. His family physician, a well-known and able colleague, took him to different nerve specialists of this city, who are recognized authorities. He went through different cures without experiencing the least relief. Finally he was advised to get away from business and take a trip to Europe. He went to Giessen, in Germany, to visit relatives, to whom he told his different ailments. He snuffled constantly at that time, and somebody advised him to consult a rhinologist. Dr. Reinewald of Giessen saw him and found pus in the middle meatus. He resected the anterior portion of the middle turbinated body and the anterior bulla cells, and advised him to see me after his return to New York. For business reasons he had to remain for a while in Germany, and consulted another specialist, Dr. Warnecke, in Hanover. The latter found an empyema of the left antrum, which he opened with Krause's trocar from the lower meatus. He treated him for a week and again advised him to call on me immediately after his return to New York.

He consulted me first on Dec. 11, 1903, and on being questioned told me that he had had pain in the nose for years and also "catarrh."

Examination.—The opening made by Dr. Warnecke had closed and pus in the antrum was again found. The next day the antrum was opened from the alveolar process, whereupon a great deal of pus was washed out. This, however, according to Mr. W., was not so putrid as that discharged after the first incision by Dr. Warnecke. The daily irrigations of the antrum met with some difficulties, the patient being a potator and of a very nervous temperament, which grew steadily worse. In spite of the irrigations, and every time after them, pus was noticed in the middle meatus. The cause of the disease, therefore, had to be looked for higher up. The removal of granulations and some ethmoidal cells could not be accomplished thoroughly, as the patient objected to it without general narcosis, but probing of the frontal sinus could be done after thorough cocainization. In transillumination the left sinus appeared darker than the other.

Operation.—The diagnosis of chronic frontal sinusitis was made and radical operation proposed. This was performed on Jan. 24, 1904. Both eyebrows were shaved and a horizontal incision made, reaching to the external margin of the eye. Then the periosteum was incised and pushed upward and downward. Very near the middle line, right above the eyebrow, the bony wall was opened with chisel and hammer. The whole anterior wall was found to be affected and removed *in toto,* mostly with bone forceps. The mucous membrane could be lifted up in pieces. The whole sinus was curetted and cleansed with hot sterile water. Then every part of it could be examined thoroughly. As the entrance to the nasal cavity was easily enlarged with a ring knife, and apparently every diseased particle removed, I saw no reason for performing here Killian's operation, but inserted a Myles drainage tube and packed the external wound with iodoform gauze.

I have to mention again that the patient was an alcoholic, and consequently the free use of wine and whisky was permitted.

Hospital Record.—During the day he was greatly distressed with gas, but relieved by enema. Further on during his convalescence a rectal tube always made him feel easier. Temperature in the evening, 99 degrees; pulse, 60.

January 26, 8 a. m., pulse, 68; temperature, 99 degrees; 9 p. m., pulse, 66; temperature, 100 degrees. Passed the day comfortably, but felt somewhat dizzy.

January 27, highest temperature, 99.6 degrees.

January 28, wound dressed, after which he was very nervous for several hours, but comfortable later on.

January 29, 8 a. m., pulse, 60; temperature, 98.2 degrees. Complains of "cloudiness of vision." 7 p. m., pulse, 64; temperature, 99.6 degrees. Is slightly delirious; alcohol rub and plenty of whisky. During the following night nurse remarked, "Very vivid imagination."

January 30, wound dressed and looks healthy. No double vision. Patient rests easily.

January 31, complains of a disagreeable smell. Temperature from one to four years afterward. I have done nearly all the operations except the complete Killian, and my most brilliant results have been accomplished through an operation I have not heard mentioned to-day. That is the thorough removal of the anterior ethmoidal cells and part of the floor of the frontal sinus through the nose. I can show cases with the most obstinate history which have recovered and are well to-day. Killian speaks of his operation as a radical one. I do not see how it can be called that, when a large cavity is left which often contains pus. I have had difficulties with the eye in removing the floor far back beyond the optic nerve. We are liable to have abscess form which may destroy the sight. I think the secret of our success in many cases depends not so much on the amount of scraping and packing, as on securing a good, large opening from the nose into the frontal sinus. The anatomy is more favorable for this and where the ethmoidal cells are large and other conditions are favorable, if the parts can be broken down easily and the ethmoidal cells all removed, we will get our most satisfactory and brilliant results, whether we do the operation beneath the brow or above it. We may be able to educate people to consent to an operation, leaving such deformity as we have seen, and this I am trying to do, injecting some of the cases with paraffin.

As to the difficulty of diagnosis spoken of by Dr. Freudenthal, I have had but little difficulty in getting a small tube in. I wrote a paper on this point along in 1890 and have been doing this work almost daily. One can not do this in a healthy sinus, but usually it can be done in a diseased sinus, and that is where it is desirable. When water is injected and returns full of pus, the diagnosis is differentiated and then one can measure how far up the instrument goes. The morning pain, which goes away in the afternoon, is due to the frontal sinus being half full of pus. Gas forms, and when this gas forces the thickened muco-pus out and escapes itself the pain disappears. I have never had a death under treatment, though one man died who refused operation for a long time and afterward consented. After three or four days he suddenly became unconscious and died.

Dr. E. E. Foster, New Bedford, Mass.—Last fall and winter I saw twelve radical operations on the frontal sinus, done by Professor Killian and his assistant, Doscent van Eiken. The results were excellent. There was one death of an old woman who was practically moribund at the time of the operation. Dr. Freudenthal mentioned the fact that Professor Killian does not shave the eyebrow; Professor Killian's reasons for not doing so are that he has had a few cases where the hair did not return, leaving a very objectionable appearance and cases where the hair grew so long that it was also objectionable. He cleans the brow with soap, alcohol and corrosive sublimate. I did not see an infection of the wound from the hair. He is very careful to remove all cut-off hairs from the skin incision before he continues the incision through the periosteum. An important point regarding the cosmetic results is to make several short superficial cuts at right angles to the long incision, thus enabling the operator, at the end of the operation, to accurately appose the much stretched edges of the incision. Diplopia occurred in several cases, but it was of only short duration. Professor Killian uses a long, narrow strip of iodoform gauze for drainage. He doubles the strip, placing the double end in the temporal side of the frontal cavity; the cavity is loosely packed; the two ends are pushed through the opening made in the floor of the frontal sinus. One end is used for packing in the nose, while the other end is brought out through the nasal orifice. A V-shaped chisel is used in making the supraorbital bridge and the boundaries of the opening through the nasal process of the maxillary bone. It has been stated that a large depression remains after the operation. I did not see any objectionable depressions in Killian's cases. In those cases where the depression is noticeable paraffin is used with excellent results. Post nasal tampons are not used, but the meati on the side to be operated on are packed with long rolls of cotton. The tampon in the middle meatus is removed when the flap is made. The flap is the mucous membrane from the nasal surface of the frontal process of the maxillary bone. The external wound is closed with aluminum wire sutures, except when there has been a fistula or the tissues over the bone have been involved in the inflammatory process, then the wound is only partly closed with a drain. The cases referred to by Dr. Richards were the cases first reported by Killian. Since then he has improved his operation in several important points, and, of course, developed greater skill. The Killian radical operation is not an operation to be attempted by the average operator.

Dr. Emil Mayer, New York City—Does Dr. Turner follow the method of Jansen in using the electrotrephine? Jansen is very fond of using this in his frontal sinus and mastoid work, and it seemed to me the stress laid on avoiding raw surfaces of bone was important.

Dr. G. E. Seaman, Milwaukee, Wis.—My colleague, Dr. Hitz, and myself have been doing work on these cases during the last year, and we had several cases which seemed to be favorable for the Killian operation. We first did the operation on the cadaver a number of times, and were very careful to avoid wounding the pulley of the superior oblique muscle, and succeeded in most instances. In one case operated on, where the frontal sinus was very large, the resulting deformity was considerable at first; this has improved. In that case there was disturbance of motility of the eyes which persisted for some time, but at the end of three months it had passed away. In discussing these cases with Dr. Sifton of Milwaukee he told me that he had operated on a frontal sinus case several years ago and had found the hemorrhage very troublesome. He put a temporary ligature on the common carotid. Does Dr. Turner consider this a recognized procedure? Is it ever necessary or justifiable in his experience?

Dr. C. R. Holmes, Cincinnati—I fail to see how obliteration of the cavity can be done in a large per cent. of cases. In the last ten or twelve years I have dissected a great many heads, and I have had a large number of specimens where the frontal sinus extends back over the orbit and some where it extended back almost to the optic foramen. In such cases I do not see how a radical operation can ever be successfully performed if we have any regard at all for appearance. I think the disfigurement is a very important factor, especially in young women. Even some men are not willing to take the chances of a radical operation if thereby they are to be disfigured for life. The oculist finds evil results from this condition on the eye. I have seen quite a number of cases of diplopia result and while after a time this becomes less, it is because there is a readjustment of the muscle. This, however, means a constant strain on the eyes for the rest of life, due to the effort of both eyes to work together. These people often suffer greatly with headache and exhaustion.

Dr. Kaspar Pischel, San Francisco—Allow me to put on record a case of optic neuritis and paralytic divergent strabismus caused by a suppurative frontal sinus. In spite of an early successful operation atrophy of the optic nerve followed. In order to inform ourselves, before the operation, of the size of the frontal sinus I would suggest taking a skiagram. That will assist in the selection of the method of operation. In Killian's operation the "sinu-nasal" canal might be covered with skin grafts to keep it well open. To prevent a depression of the skin above the eyebrow, part of the sinus might be filled with paraffin covered with absorbable Cargile membrane. The bone flap shown on the screen by Dr. Turner seems to give an ideal cosmetic result. The sinus might then be lined by skin grafts as we cover the bone trough in radical mastoid operations.

Dr. F. C. Ard, Plainfield, N. J.—During the past winter I have assisted Dr. Coakley in a number of operations on the frontal sinus, and his method of operating has not been mentioned in this discussion. He removes the anterior wall, without disturbing the floor of the sinus, and curettes the walls of the cavity with great care, under illumination, and then packs with iodoform gauze. He aims to obliterate the naso-frontal duct, and to allow the cavity to fill up by granulation. Sufficient time has not elapsed in these cases to make sure there will be no recurrences, but there is apparent recovery in all that I have examined, as is evidenced by the fact that the wounds have healed, and there is no pus in the nasal cavities. A case that I operated on early in March by this method has just healed, but it was a very large sinus.

Dr. W. Freudenthal—Dr. Turner has brought up the osteoplastic operations, though he has not done any himself. In some cases I find it impossible to do this because of the broken-down tissue which must be removed. I remember one case where I removed the whole anterior wall, and a new wall formed. I have not seen a case of diplopia. I use atropin before the operation. But these cases of diplopia go more to the ophthalmologist than to us. I must admit that Dr. Myles has had a larger experience than I and he is able to do more with these cases than most of us. In many cases I could not reach the frontal sinus, and it is often impossible to measure the distance. Dr. Turner himself mentions having attempted to enter the right sinus and got into the left one instead. Dr. Foster's point was well taken. The disfigurement in my cases was very slight, probably due to the periosteum being preserved. The last word has not yet been spoken on these operations and we shall have to learn a great deal more. Yet if we can save a few of those cases like the one mentioned in my paper, who was contemplating suicide, we have done a great deal.

Dr. A. Logan Turner—Much more was omitted from the paper that might have been said. We are not yet at the bottom of this question; there is still much to learn, but some day we shall be in better position to deal with these cases. I have not been educated to Dr. Myles' view that we can treat these cases through the nose. As regards treatment by drainage through the nose, I know that there are cases in which satisfactory results have been obtained, but if we consider the anatomic configuration of the sinus, I do not see how we are to expect a cure by this method. There were many points of detail which I did not give fully for lack of time. One point about which I wanted information was in regard to the formation of a flap of mucous membrane described by Killian. Others as well as myself have had difficulty in understanding this point. With regard to the osteoplastic operation, I introduced this procedure from Hajek's new edition. There seems to be something in the Killian method of operating which is approaching more nearly to the result desired, giving excellent curative results with the minimum of disfigurement. I have had no experience with the use of the electric trephine. We can obtain good, smooth edges by the careful use of the chisel. I have always found hemorrhage to be well controlled with peroxid of hydrogen. This stops it very rapidly, just as it does in mastoid work. I do not know whether the common carotid has ever been ligated in these cases or not.

Dr. Holmes said he felt difficulty in seeing how the sinus could be obliterated. I have had no difficulty whatever in doing this, either on the living person or on the cadaver. It is astonishing to see how readily the soft tissues of the orbit rise up while you are removing the floor of the sinus and obliterate the orbital portion of the cavity. It is wise to remove all of the bony floor and not to leave any bone at the apex of the orbit. Further, what Dr. Holmes said about the future of these cases is important. I shall take occasion to find out whether my old cases have developed any eye strain. I did not refer to the method spoken of by Dr. Ard, viz., preservation of the osseous floor. Dr. Coakley probably obliterates the orbital part of the sinus by gradually filling it up with granulations.

Prophylaxis in Surgery.—It has always been my idea, wrote Dr L. Sexton of New Orleans, that if surgeons would spend more time in getting the patient in proper condition to stand the operation, in having everything in readiness, in having assistants trained in what they are expected to do, and also if the least possible time were consumed in performing the operation, and if all lectures and explanations were suspended until the operation is finished, much less of the first necessary poison, viz., the anesthetic, would be required, and we would have fewer cases *in extremis* to deal with after operations.

PRESENT STATUS OF ANTITUBERCULOSIS WORK IN THE UNITED STATES.

SUGGESTIONS FOR A MORE EFFECTUAL CO-OPERATION OF AUTHORITIES, PHILANTHROPISTS, PHYSICIANS AND LAYMEN.*

S. A. KNOPF, M.D.
NEW YORK CITY.

The kind interest with which my first report in 1897 and my second report in 1902 on the tuberculosis problem in the United States was received by the members of the Section on Hygiene and Sanitary Science and of the American profession at large encourages me again to give a bird's-eye view of what is being done in our country in the combat of the great white plague. Between my first and second reports five years had intervened; between my second and third only two years have elapsed. My reasons for reporting after this shorter interval are to be found in the unusual activity of sanitary authorities of the medical profession at large, and of the philanthropic societies and individuals engaged in antituberculosis work. Far greater progress has been made during the last two years than in the preceding five or ten.

There are now no less than forty-eight American and five Canadian associations for the prevention of tuberculosis, working under the names of societies, committees or commissions. The following is as complete a list as I have been able to collect myself up to this date[1] and to Miss Lillian Brandt, the very efficient statistician of our tuberculosis committee in the New York Charity Organization Society, I am indebted for such statistical material as was at her disposal.

SOCIETIES AND COMMITTEES FOR THE PREVENTION OF TUBERCULOSIS, AND STATE COMMISSIONS.

CALIFORNIA.

Southern California Antituberculosis League—F. M. Pottenger, M.D., president, 226 Bradbury Bldg., Los Angeles, Cal.

Tuberculosis Committee of the Medical Society of the State of California—Dr. F. M. Pottenger, secretary, 226 Bradbury Bldg., Los Angeles, Cal.

COLORADO.

Evangelican Lutheran Sanitarium Association of Denver, Colo. —Frederick d'Amour, president; Dr. Henry G. Merz, secretary, 632 17th St., Denver.

Jewish Consumptives Relief Society.—Dr. C. D. Spivak, secretary, 1421 Court Place, Denver, Colo.

CONNECTICUT.

New Haven County Antituberculosis Association—Dr. Francis Bacon, president, New Haven, Conn.

DISTRICT OF COLUMBIA.

Committee on the Prevention of Consumption of the Associated Charities—Dr. Wm. C. Woodward, chairman, 811 G St., N. W., Washington, D. C.

GEORGIA.

Georgia Medical Commission to Investigate the Extent of Tuberculosis in Georgia, and Means of Stamping Out the Disease.—Dr. Charles Hicks, chairman, Dublin, Ga.

ILLINOIS.

Committee on the Prevention of Tuberculosis of the Visiting Nurses' Association.—Dr. Alice Hamilton, 79 Dearborn St., Chicago.

Illinois State Association for the Prevention of Tuberculosis.—Dr. Edmund J. James, president; Dr. Arnold C. Klebs, secretary, Chicago.

Committee on Tuberculosis of the Illinois State Medical Society. —Dr. J. W. Pettit, chairman, Ottawa, Ill.

National Antituberculosis Association, Incorporated in Springfield Ill.—Incorporators: Dr. W. B. Metcalf, Rev. F. M. Carson, C. O. Hanford, Alderman Butterworth, W. R. McDonough, all of Chicago.

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*The discussion on the papers of Drs. Knopf and Price, in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904, will appear in a later issue with the paper of Dr. Price.

[1] Owing to the large number of papers read at Atlantic City it was impossible to have this report appear before. During the six months since the paper was read a number of new societies have been formed and several new institutions established. Through the courtesy of the editor of The Journal, the manuscript was returned to me in order that I might bring the statistical portion as nearly as possible up to date (January, 1905).

INDIANA.

Indiana Committee of Tuberculosis of the State Medical Society.—Dr. J. N. Hurty, secretary, Indianapolis.

The Antituberculosis Society of Indiana.—Dr. Theodore Potter, secretary, Indianapolis, Ind.

MAINE.

The Maine State Sanatorium Association.—Portland, Me.

MARYLAND.

Maryland State Commission.—Dr. Marshall Langton Price, medical officer, 10 South St., Baltimore.

The State Association for the Prevention and Relief of Tuberculosis in Maryland.—Dr. H. B. Jacobs, president; Dr. Joseph S. Ames, secretary.

MASSACHUSETTS.

The Boston Association for the Relief and Control of Tuberculosis.—A. M. Wilson, secretary, 6 Beacon St., Boston.

Tuberculosis Aid and Education Association.—Miss Edna A. Woolson, secretary, 277 Howard St., Cambridge, Mass.

The Springfield Association for the Prevention of Tuberculosis.—Dr. H. C. Emerson, president, Springfield, Mass.

Worcester Association for the Relief and Control of Tuberculosis.—Earle Brown, secretary, Worcester, Mass.

American Invalid Aid Society.—Mrs. E. W. Waite, secretary, 73 Tremont St., Boston.

MINNESOTA.

Society for the Prevention of Tuberculosis.—Dr. H. M. Bracken, Pioneer Press Bldg., St. Paul, Minn.

Minnesota State Commission (in regard to Sanatoria).—Dr. H. L. Taylor, Chairman, 75 Lowry Arcade, St. Paul, Minn.

The Antituberculosis Committee of the Associated Charities of Minneapolis.—Edwin D. Solenberger, secretary, 738 Boston block, Minneapolis, Minn.

MISSOURI.

St. Louis Society for the Prevention of Tuberculosis.—Mr. F. E. Eaton, president; Mr. G. A. Blickhahn, secretary; Dr. Wm. Porter, chairman, St. Louis.

NEW HAMPSHIRE.

New Hampshire State Commission (in regard to a sanatorium).—Dr. Irvin A. Watson, chairman, Concord, N. H.

New Hampshire Society for the Prevention of Consumption.—Dr. O. B. Douglas, chairman, Concord N. H.

Suncook Association for the Prevention of Tuberculosis.—Suncook, N. H.

NEW JERSEY.

New Jersey State Commission (in regard to Sanatorium).—Edwin A. Stevens, treasurer, 1 Newark St., Hoboken, N. J.

Antituberculosis Committee of the Oranges.—Miss Louisa R. Pierson, secretary, Orange, N. J.

NEW YORK.

Binghamton Society for the Prevention and Cure of Tuberculosis.—Charles W. Fetherolf, secretary, 9 Linden Ave., Binghamton, N. Y.

Tuberculosis Committee of the Buffalo Charity Organization Society.—Dr. P. W. Van Peyma, chairman; Frederik Almy, secretary, 165 Swan St., Buffalo, N. Y.

Committee on the Prevention of Tuberculosis of the New York Charity Organization Society.—Paul Kennaday, secretary, 105 E. 22d St., New York City.

Tuberculosis Committee of the United Hebrew Charities.—Dr. Lee K. Frankel, secretary, 365 Second Ave., New York City.

Committee on the Prevention of Consumption of the United Garment Workers of America.—Henry White, chairman, Bible House, New York City.

Tuberculosis Committee of the Rochester Public Health Association.—Dr. M. E. Leary, 32 South Washington St., Rochester, N. Y.

OHIO.

Ohio Society for the Prevention of Tuberculosis.—Dr. C. O. Probst, secretary, State Board of Health, Columbus, Ohio.

Ohio Commission, appointed by the Governor to investigate the desirability of a State Sanatorium.—Dr. C. O. Probst, secretary, Columbus, Ohio.

PENNSYLVANIA.

Pennsylvania Society for the Prevention of Tuberculosis.—Dr. Lewis Brinton, secretary, 1423 Spruce St., Philadelphia.

The White League.—Mr. Edwin W. Perot, secretary, 1515 Arch St., Philadelphia.

Scranton Society for the Prevention and Cure of Consumption.—Dr. J. M. Wainwright, secretary and treasurer, 627 Linden St., Scranton, Pa.

Henry Phipps Institute.—Dr. Lawrence F. Flick, president, 238 Pine St., Philadelphia.

RHODE ISLAND.

Newport Association for the Relief, Control and Prevention of Tuberculosis.—President, Mr. Robert Frame (president Newport Board of Health); secretary, Mr. Clarence C. Moore, Newport, R. I.

VERMONT.

Vermont Society for the Study and Prevention of Tuberculosis.—Dr. H. E. Lewis, secretary, Burlington, Vt.

Vermont State Tuberculosis Commission.—Dr. H. E. Lewis, secretary, Burlington, Vt.

WISCONSIN.

Wisconsin State Commission for the Prevention of Tuberculosis.—Dr. Gustav Schmitt, 1206 Walnut St., Milwaukee, Wis.

NATIONAL.

National Association for the Study and Prevention of Tuberculosis.—Dr. E. L. Trudeau, president; Dr. Wm. Osler, first vice-president; Dr. Hermann M. Biggs, second vice-president; Dr. H. Barton Jacobs, honorary secretary; Prof. Livingston Farrand executive secretary; Dr. George M. Sternberg, surgeon-general, treasurer. The board of directors is composed of 20 men from all over the states who are particularly interested in the study and prevention of tuberculosis. The following is the present composition of the board: California, Dr. Norman Bridge; Colorado, Dr. S. E. Solly; Connecticut, Dr. John C. P. Foster; Washington, D. C., Dr. George M. Sternberg; Illinois, Drs. Arnold C. Klebs and Robert H. Babcock; Indiana, Dr. J. N. Hurty; Maryland, Drs. Wm. H. Welch, William Osler, H. B. Jacobs and John S. Fulton; Minnesota, Dr. Henry B. Bracken; Missouri, Dr. William Porter; Massachusetts, Drs. Edward O. Otis and Vincent Y. Bowditch; New Jersey, Mr. Frederick L. Hoffman; New York, Drs. Hermann M. Biggs, S. A. Knopf, Edward L. Trudeau and Mr. Edward T. Devine; North Carolina, Dr. Charles L. Minor; Ohio, Dr. Charles O. Probst; Pennsylvania, Drs. Lawrence F. Flick, Mazyk P. Ravenel, H. S. Anders and Leonard Pearson; Texas, Dr. N. M. Smith and Dr. George E. Bushnell of the United States Army Hospital, and Surgeon-General Walter Wyman of the United States Marine Hospital; Dr. H. Barton Jacobs, secretary, 11 Mt. Vernon Place, Baltimore.

CANADA.

The Canadian Association for the Prevention of Consumption and Other Forms of Tuberculosis.—Rev. M. Moore, D.D., secretary, 128 Wellington St., Ottawa, Canada.

Ontario Anticonsumption League.—Rev. C. S. Eby, D.D., secretary, Toronto, Canada.

Montreal League for the Prevention of Tuberculosis.—Dr. A. J. Richer, honorary secretary, 11 Bleury St., Montreal, Quebec.

The St. Francis District League for the Prevention of Tuberculosis.—Dr. E. J. Williams, honorary secretary, Sherbrooke, Quebec, Canada.

The New Brunswick Association for the Prevention and Cure of Consumption.—Dr. William Bayard, St. John, N. B.

BRITISH COLUMBIA.

The British Columbia Society for the Prevention of Tuberculosis.—Dr. J. C. Fagan, secretary, Victoria, B. C.

Before proceeding with the statistical information, permit me first to say a word or two on the work and mission of such organizations. They are, as a rule, composed of medical men and of laymen. Many do educational work alone, others incorporate in their work the establishment of sanatoria; still others make this their exclusive purpose; others again make it their main object to take care of the patients at their homes; but nearly all these associations study the social aspect of tuberculosis in its various forms which are inevitably connected with work of that kind.

A little over two years ago, when I thought the time ripe to form an association or committee of that kind in New York, I laid down the following objects and aims for such an association in a call which was issued at the time, and which finally resulted in the formation of the New York Charity Organization Society's Committee for the Prevention of Tuberculosis:

1. The promulgation of the doctrine that tuberculosis is a communicable, preventable and curable disease.

2. The dissemination of knowledge concerning the means and methods to be adopted for the prevention of tuberculosis.

3. The advancement of movements to provide special hospitals, sanatoria and dispensary facilities for consumptive adults and scrofulous and tuberculous children among the poor.

4. The initiation and encouragement of measures which tend to prevent the development of scrofula and of other forms of tuberculous diseases.

To this call were attached the signatures of Prof. Hermann M. Biggs, Prof. Joseph D. Bryant, Dr. John H. Huddleston, Prof. A. Jacobi, Prof. Walter B. James, Prof. Edward G. Janeway, Prof. Alexander Lambert, Prof. Henry B. Loomis, Prof. T. Mitchell Prudden, Prof. Andrew H. Smith, Prof. Stephen Smith, and my own. Owing to the difficulty of finding a layman with the proper qualification for president of the society, the medical men who had signed the appeal, joined with the New York Charity Organization Society, to form a special committee, of which Mr. Charles F. Cox became president, and Mr. Edward T. Devine, secretary *pro tem.* A number of other prominent physicians, philanthropists and trained charity workers joined the committee, and it has now its regular paid secretary and its paid statistician.

Concerning the work it has done during the few years of existence, permit me to quote the following it from the handbook issued by the committee: During the winter of 1902-1903, 91 lectures were delivered under the auspices of the committee in the various settlements, Young Men's Christian Associations, Young Men's Hebrew Associations, churches, public schools, etc. Most of these were in English, but a number of them were delivered in German, Bohemian, Italian, French and Hebrew (Yiddish). During the same period this committee has distributed 77,000 printed lectures and leaflets of instruction. One of the most important circulars of all I consider the one issued in regard to the frequently advertised "absolute consumption cures." I consider this so important that you will permit me to reproduce it here in the hope that other organizations may copy it and thus protect many unfortunate people.

> WHEREAS, It has come to the knowledge of the Committee on Tuberculosis of the Charity Organization Society that many so-called specific medicines and special methods of cure for tuberculosis have been and are being exploited and widely advertised; and
>
> WHEREAS, The advertisements of some of these cures have made such reference to the Tuberculosis Committee of the Charity Organization Society, or to some of its members, as to create the inference that this committee, or its members, recommend or advocate the use of many such so-called specifics or special methods of cure for pulmonary tuberculosis, or consumption; and
>
> WHEREAS, There is no specific medicine for this disease known, and the so-called cures and specifics and special methods of treatment widely advertised in the daily papers are, in the opinion of the committee, without special value, and do not at all justify the extravagant claims made for them, and serve chiefly to enrich the promoters at the expense of the poor and frequently ignorant and credulous consumptives; therefore be it
>
> *Resolved*, That a public announcement be made that it is the unanimous opinion of the members of this committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine or method except the regularly accepted treatment, which relies mainly upon pure air and nourishing food.

Add to this the nearly 50,000 circulars distributed by the medical inspectors of the board of health, and an idea may be obtained of the really enormous educational work done in New York. Of the other work done by the tuberculosis committee, we must note its protest to the governor against the signing of the Goodsell-Bedell bill, the protest against dwarfing the present tenement-house laws, the urging of the destruction of the celebrated "lung block," and the constant urging of the establishment of sanatoria for the consumptive poor of New York.

Besides this work, the sub-committee on treatment of our larger committee has during the first year of its existence taken care of 211 families having tuberculous members. The handbook above mentioned will give those who desire to learn more of the New York Tuberculosis Committee and what it has done much additional information. All I hope to have shown in this present meager report is what a tuberculosis committee can do when it has the support of the medical profession, the philanthropist and the municipal authorities.

I must not leave the subject of tuberculosis organizations without referring to one which has just been formed[2] under the name of "The National Association for the Study and Prevention of Tuberculosis." As those who have followed this movement will know, this association is the outcome of the earnest desire on the part of many American physicians interested to have a representative American Association for the study and the prevention of tuberculosis. The movement started with a conference called together at the occasion of the Tuberculosis Exposition in Baltimore and the subsequent appointment of committees and the framing of constitutions and by-laws. The objects of the association are (*a*) the study of tuberculosis in all its forms and relations; (*b*) the spreading of knowledge about the causes, treatment and prevention of tuberculosis; (*c*) the encouragement of the prevention and scientific treatment of tuberculosis.

I know that I express the sentiment of this Section, which has always been so deeply interested in the tuberculosis subject, in wishing this new organization God speed and a useful and glorious career. The calling into life of this national society is, to my mind, one of the most important events in the history of American medicine.

The next most important point concerning the present status of the antituberculosis work in the United States would be a list of sanatoria, special hospitals and homes devoted to the exclusive treatment of patients suffering from tuberculous diseases. I append herewith a list of such institutions existing at the present time in the United States and Canada:

LIST OF SANATORIA, SPECIAL HOSPITALS AND CAMPS FOR THE TREATMENT OF PULMONARY TUBERCULOSIS.

ARIZONA.

Mercy Hospital, at Phoenix, Ariz.; 20 beds.

St. Mary's Hospital and Sanatorium of the Sisters of St. Joseph, at Tucson; 30 beds.

"Palm Lodge" Sanatorium and Tent Colony for Incipient Tuberculosis, at Phoenix, Ariz.; Dr. Henry M. Stone, res. phys.; 55 beds; private.

CALIFORNIA.

Dr. J. W. Barlow's Sanatorium, at Los Angeles; 15 beds.

Esperanza Sanatorium, the Sierra Home of the Open-air Cure for Pulmonary Diseases, at Altadena, Cal.; Dr. F. C. Melton, res. phys.; private; 50 beds.

Ranch of Mr. N. O. Nelson, at Indio, Cal.; private.

Pottenger Sanatorium for Diseases of the Lungs and Throat, at Monrovia, Cal., Dr. F. M. Pottenger, med. dir.; 50 beds; private.

Trinity Settlement, at Redlands, Cal.; private; Dr. Moseley, med. dir.

Ballard Pulmonary Sanatorium at Pasadena, Cal.; Dr. W. H. Ballard, phys.-in-chief; 25 beds; private.

The Mentone Sanatorium, near Redlands, Cal.; A. R. Schultz, manager; Dr. Fred J. Koepke, res. phys.; 50 beds.

Tents for Tuberculous Patients of the Mendocino State Hospital for Insane, at Talmage, Cal.; Dr. E. W. Wing, supt.

COLORADO.

Glockner Sanatorium, at Colorado Springs; conducted by the Sisters of Charity; medical staff; 80 beds; private.

The Nordrach Ranch, at Colorado Springs; Dr. J. E. White, med. dir.; 50 beds; private.

Emma Booth Tucker Memorial Sanitarium for Consumptives; Salvation Army Tent Colony, at Amity, Prowers Co., Colo.; Dr. Greenard, res. phys.; 100 beds; charitable.

National Jewish Hospital for Consumptives, at Denver; Dr. Moses Collins, supt.; 90 beds; philanthropic.

Y. M. C. A. Health Farm, at Denver; semi-philanthropic; Dr. John Wethered, res. phys.; 45 beds.

Agnes Memorial Sanatorium, at Denver; Dr. G. W. Holden, sec.; 150 beds; semi-philanthropic.

Home for Consumptives, at Denver; Rev. Frederick W. Oakes, supt.; 150 beds; semi-philanthropic.

Resthaven (Home for Consumptives), Park Hill Addition, Denver; Dr. I. S. Garthwaite, president; 50 beds; semi-philanthropic.

Colorado Sanatorium, at Boulder, Colo.; Dr. H. F. Rand, med. supt.; 200 beds; private.

"Foxhall," A Private Home for Pulmonary Invalids; Dr. Wm. N. Beggs, med. dir., 133 West Colfax Ave., Denver; private.

Colorado Tent Colony Sanatorium, at Bennett, Colo.; Dr. W. K. Robinson, phys.-in-chief; 100 beds; private.

Mrs. Lare's Private Sanatorium for Consumptives, 4633 Bert St., Denver; private.

Rocky Mountain Industrial Sanatorium, at Wellington Lake, Denver; Dr. A. M. Holmes, med. dir.; semi-philanthropic.

Ballard Sanatorium, at Pueblo; Mrs. L. B. Wright, matron; 40 beds.

"Tented City," Under Auspices of the Jewish Consumptives' Relief Society, near Denver; philanthropic; Dr. C. D. Spivak, sec.; 12 beds.

CONNECTICUT.

Gaylord Farm Sanatorium, at Wallingford; Dr. David R. Lyman, med. supt.; 40 beds; semi-philanthropic.

New Canaan Pulmonary Sanatorium, at New Canaan; Dr. M. J. Brooks, phys. in charge; 30 beds; private.

Separate Wards for Tuberculous Prisoners, at Westerfield, Conn

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[2] At the time of the Fifty-fifth Annual Meeting of the American Medical Association, at Atlantic City, N. J., June, 1904.

DISTRICT OF COLUMBIA.

State Hospital for Consumptives, at Hartford; public.

Tuberculosis Division of Government Hospital for the Insane, at Washington, D. C.; Dr. Wm. A. White, supt.; 70 beds.

Washington Asylum Hospital, Tent Wards for Consumptives; Dr. D. Percy Hickling, phys.; Washington, D. C.; 34 beds.

DELAWARE.

Division for Tuberculous Patients at State Hospital for the Insane; Dr. Wm. H. Hancker, supt., Farnhurst, Del.; public.

FLORIDA.

Naval Hospital; Tuberculosis Camp, at Pensacola, Fla.; 50 beds.

HAWAII.

Honolulu Home for Incurables; Dr. A. H. Sinclair, med. supt.; 24 beds; semi-philanthropic.

ILLINOIS.

The Alexian Brothers' Hospital—Consumptives' Ward, Chicago; semi-philanthropic.

St. Anne's Sanatorium for Consumptives, 49th and Thomas Sts., Chicago; Dr. A. F. Kramps, phys.; Sister Superior, supt.; 125 beds; *private*; and 15 free beds.

Cook County Hospital for Consumptives, at Dunning, Ill.; Dr. M. S. McHugh; public; 560 beds.

Illinois Camp *for the* Tuberculous, near Ottawa, Ill.; *under the* Auspices of the Illinois State Med. Soc.; Dr. James W. Pettit, phys. in charge; semi-philanthropic; 40 beds.

INDIANA.

St. Rochus Hospital for Consumptives, West End Main St., Fort Wayne, Ind.

Flower Mission Pavilion, City Hospital, Indianapolis; philanthropic; Dr. P. F. Martin, supt.; 26 beds.

Special Wards for *Tuberculous Prisoners at the* State Reformatory at Indianapolis; Dr. H. C. Sharp, phys. in charge.

IOWA.

Boulder Lodge Sanatorium for Tuberculosis, at Fort Dodge; Dr. John W. Kime, phys.-in-chief; 20 beds; private.

KENTUCKY.

Separate Wards for Tuberculous Prisoners at the Prison Hospital, at Frankfort, Ky.; 20 beds.

LOUISIANA.

Dr. G. R. Tolson's Private Sanatorium, at Covington, La.; private.

Separate Pavilion for Tuberculous Patients of the State Insane Asylum, at Jackson, La.; Dr. Geo. A. B. Hays, supt.; 32 beds.

MAINE.

The Maine Sanatorium, at Greenwood Mountain, near Hebron, Me.; Dr. Estes Nichols, med [illegible] beds, semi philanthropic.

MARYLAND.

Eudowood Sanatorium, Hospital for Consumptives of Maryland, near Towson, Md.; Dr. Harry P. Jarrett, res. phys.; 31 beds; philanthropic.

Bay View Asylum Hospital, Baltimore; Dr. W. H. Smith, phys.; Rev. L. F. Zinkham, supt.; 250 beds; public.

Tents for Tuberculous Patients of the Springfield State Hospital for the Insane, at Sykesville, Md.; Dr. J. C. Clark, supt.

MASSACHUSETTS.

Almshouse Hospital, *at Boston*; *public*; Dr. S. F. Cox, res. phys.; 60 beds.

Channing Home, 30 McLean St., Boston; Mrs. C. P. Fennel, supt.; 17 beds; philanthropic.

House of the Good Samaritan, 6 McLean St., Boston; Miss F. A. Jack, *supt.*; 27 beds.

Sharon Sanatorium, at Sharon, Mass.; Dr. V. Y. Bowditch, phys.-in-chief; 21 beds; semi-philanthropic.

Cullis Home for Consumptives, Blue Hill Ave., Dorchester, Mass.; Rev. E. D. Mallory, supt.; 40 beds.

Free Home for *Consumptives, 428 Quincy St., Dorchester, Mass.*; Jeanette Campbell, supt.; 30 beds; philanthropic.

The Millet Sanatorium, at East Bridgewater, Mass.; Dr. C. S. Millet, phys.-in-chief; 20 beds; private.

Massachusetts State Sanatorium, at Rutland, Mass.; Dr. Walter J. *Marclay*, supt.; public; *250 beds*.

Boston Children's Hospital, Tuberculosis division at Wellesley Hills; 12 beds (including surgical cases).

Private Sanatorium of Dr. David P. Butler, at Rutland, Mass.

State Hospital, at Tewkesbury, Mass.; Dr. John H. Nichols, supt.; 100 beds; public.

Holy Ghost Hospital for Incurables, at Cambridge, Mass.; Sister A. M. Purcell, supt.; 35 beds; private.

MICHIGAN.

Wayne County Hospital, at Eloise, Mich.; tents for 30 tuberculous patients; public; Dr. R. H. Earle, res. phys.

MINNESOTA.

Luther Hospital, at St. Paul, Minn.; Dr. H. G. Steeb, manager; 100 beds.

State Sanatorium *for Consumptives*, at Walker, Cass Co., Minn.

Special Wards for Tuberculous Prisoners, at the State Prison at Stillwater, Minn.

MISSISSIPPI.

Special Hospital for the Tuberculous Insane, at Jackson, Miss.; Dr. T. J. Mitchell, supt.; 40 beds.

MISSOURI.

Mount St. Rose Throat and Chest Hospital, 9200 S. Broadway, St. Louis; conducted by Sisters of St. *Mary*; *Dr. Wm.* Porter, phys.; 100 beds; philanthropic.

Emergency City Hospital, No. 2, St. Louis; Dr. J. Y. *Brown*, res. phys.; 34 beds.

NEBRASKA.

Green Gables, Lincoln, Neb.; Dr. Benjamin F. Bailey, 53d and South Sts.; 35 beds.

NEW HAMPSHIRE.

Pembroke Sanatorium for Consumptives, at Concord, N. H.; Dr. H. T. Fontaine, phys.; 35 beds; private.

White Mountain Tuberculosis Sanatorium, at *North* Conway, N. H.; Dr. S. Dryden Snow, phys.; Clifton J. Bailey, supt.; 50 beds; philanthropic.

NEW JERSEY.

Memorial Hospital, at Orange, N. J.; Mary I. Chambers, supt.; special building for tuberculous patients; 18 beds.

State Sanatorium, at Glen Gardner, Hunterdon Co., N. J.

NEW MEXICO.

St. Joseph's Sanitarium, at Albuquerque; conducted by Sisters of Charity; 100 beds; private.

Chico Springs Sanatorium; Dr. H. B. Masten, med. supt.; 25 beds; private.

St. Antony's Sanatorium, at East Las Vegas; conducted by Sisters of Charity; 32 beds; semi-philanthropic.

"The Montezuma," at Las Vegas Hot Springs, N. Mex.; Dr. J. W. Coon, res. phys.; 200 beds.

St. Vincent's Sanatorium, at Santa Fe; conducted by Sisters of Charity; 28 rooms; semi-philanthropic; Dr. J. Massie, res. phys.

Sun Mount Tent City ("for lung troubles only"), at Santa Fe; Dr. W. M. Popplewell, phys.-in-chief; private.

St. Joseph Sanatorium, at Silver City; Dr. E. S. Bullock, med. dir.; private; 50 beds.

Pines Cottages, at Silver City; T. S. Parker, propr.; private.

The Alameda, at Las Cruces, N. Mex.; 40 beds; private.

The Las Cruces Sanatorium, at Las Cruces; Dr. R. E. McBride, supt.; private; 40 beds.

General Hospital for Soldiers of U. S. Army, at Fort Bayard; *Lt.-Col. E. T. Comegys, Deputy Surg.-Gen.* U. S. A., phys.; 300 beds.

U. S. Public Health and Marine Hospital Service Sanatorium, at Fort Stanton, N. Mex.; Surgeon P. M. Carrington in command; 225 beds.

NEW YORK.

Montefiore Home Country Sanatorium, at Bedford Station, N. Y.; Dr. L. Rosenberg, supt.; 160 beds; philanthropic.

Sanatorium Gabriels, at Gabriels, near Paul Smith's, N. Y.; Sister Mary of Mercy, supt.; R. L. Strong, house phys.; 100 beds; Drs. S. A. Knopf and J. J. Walsh, cons. phys.; semi-philanthropic.

Stony Wold Sanatorium (for Incipient Tuberculosis in Women and Children), at Lake Kushaqua, Franklin Co., N. Y.; Dr. H. S. *Goodall, phys.-in-charge; semi-philanthropic; 150 beds.*

Loomis Sanatorium, at Liberty, N. Y.; Dr. Herbert M. King, phys.; 100 beds; private and semi-philanthropic.

The Edgemont, at Liberty, N. Y.; private.

"Mountain Sanatorium," at Binghamton, N. Y.; Miss Grace C. *Wagner, supt.*; public.

State Hospital for the Insane, at Binghampton, N. Y.; special pavilion for the tuberculous; 100 beds.

Erie County Hospital, tuberculosis wards, at Buffalo; Dr. E. J. Gilray, phys.; 54 beds; public.

Buffalo State Hospital, at Forest Ave., Buffalo; Dr. Arthur W. Hurd, med. supt.; tuberculosis wards; public.

Hospital for Incipient Tuberculosis, *at Rochester, N. Y.*; Dr. G. W. Coler, phys. in charge; 40 beds; semi-public.

State Hospital for Incipient Tuberculosis, at Raybrook, Franklin Co., N. Y.; Dr. John H. Pryor, phys.; $5.00 per week; 120 beds.

Adirondack Cottage Sanatorium, at Saranac Lake, N. Y.; Dr. E. L. Trudeau, phys.-in charge; Dr. Lawrason Brown, res. phys.; 100 beds; semi-philanthropic.

Reception Cottage, at Saranac Lake, N. Y.; Dr. E. R. Baldwin, phys.; semi-philanthropic; 15 beds.

Raymond Cottage, at Saranac Lake; in charge of Mrs. Josephine R. Raymond; Dr. E. R. Baldwin, phys.; 14 beds.

Rumanapp Cottage, at Saranac Lake; in charge of Miss Rumanapp; Dr. Lawrason Brown, phys.; 20 beds.

Hill Crest, at Santa Clara, Franklin Co., N. Y.; for working girls and women; Dr. Caroline M. Hengel, res. phys.; 56 beds; private.

Springside Sanitarium, at Auburn, N. Y.; Dr. Nettie E. Jenkins, *res. phys.*; 15 beds; private.

All Saints' Home, at Verkank, Duchess Co., N. Y.; Pavilion for Tuberculous Patients; in charge of the Brothers of Nazareth; 10 beds.

Westchester County Hospital (Pavilion for Consumptives); Dr. Fred'k Baker, house phys.; 24 beds; public.

Brooklyn Home for Consumptives, 240 Kingston Ave., Brooklyn; Dr. E. Reynolds, phys.; Elizabeth A. Doyle, supt.; 120 beds; semi-philanthropic.

Seton Hospital, at Spuyten Duyvil, New York City; Dr. B. B. Steedly, phys.; 200 beds; semi-philanthropic.

St. Joseph's Hospital for Consumptives, East 143d St., New York City; Dr. *Charles* M. Cauldwell, phys.-in-chief; 350 beds; semi-philanthropic.

The House of Rest for Consumptives, Bolton Road and 209th St., New York City; George Sauer, supt.; philanthropic; 39 beds.

St. Peter's Hospital, at Henry, Congress and Warren Sts., New York City; *Five Wards Reserved for Consumptives*; conducted by the Sisters of the Poor of St. Francis; Dr. T. P. Corbally, phys. in charge; 75 beds; philanthropic.

Home for Incurables, Third Ave. and 181st St., New York City; Dr. Israel C. Jones, supt.; 275 beds; tuberculosis wards.

New York Postgraduate Hospital Annex for the Treatment of Tuberculosis (for poor patients only), at 322 E. 10th St., New York City; Dr. John F. Russell, *phys.* in charge; 12 beds; philanthropic.

Kings County Hospital Infirmary, Clarkson St., New York City; tuberculosis wards; Dr. F. W. Smith, res. phys.; 65 beds.

Montefiore Home (Ward for Consumptives), Broadway and 138th St., New York City; Dr. S. Wachsmann, phys.; A. Hausmann, supt.; philanthropic; 40 beds.

The Riverside Sanatorium for Pulmonary Diseases; Health Dept. *of the* City *of* New York, at North Brother Island; Drs. S. A. Knopf, W. J. Pulley and John H. Huddleston, visit. phys.; Dr. Samuel T. Watson, res. *phys.*; 60 beds; public; free.

Lincoln Hospital and Home (Tuberculosis Ward), 141st St. and South Boulevard, New York City; Amzi Lake, supt.; for *colored; free;* 40 beds.

Manhattan State Hospital East for the *Insane*, at Wards Island, New York City; Dr. A. E. McDonald, supt.; tuberculosis division.

Tent Colony for Tuberculous Men and Women *of the* Willard State Hospital for the Insane, at Willard, Seneca Co., N. Y.; Dr. Robert M. Elliott, supt.

County Hospital (Tuberculosis Ward), East View, Yonkers, N. Y.; public.

Phthisis Infirmary of the Metropolitan Hospital, at Blackwells Island, New York City; under homeopathic management; public; free; Dr. J. B. Mickle, chief of med. staff; 450 beds.

Seaside Tent Sanatorium for Scrofulous and Tuberculous Children of the Society for Improving the Condition of the Poor, at Seabreeze, Coney Island, N. Y.; Dr. M. Burnham, res. phys.; philanthropic; 54 beds.

Wards for Tuberculous Prisoners of Clinton Prison, at the Dannemora State Hospital, Dannemora, N. Y.; Dr. J. B. Ransom, med. officer.

NORTH CAROLINA.

The Winyah Sanitarium, at Asheville, N. C.; Dr. Karl von Ruck, med. director; 70 beds; private.

Southern Pines Sanitarium, at Southern Pines, N. C.; Dr. Edwin Gladmon, phys.; 30 beds; private.

Pineshire Sanitarium, at Southern Pines; Dr. L. F. High, phys.; 25 beds; private.

Franklin Humanitarian Home, at Black Mountain, N. C.; philanthropic; 12 beds.

St. Joseph's Sanatorium, at Asheville; conducted by the Sisters of Mercy; 25 beds; private.

Dr. Stevens' Home for Incipient Tuberculous Patients, at Asheville, N. C.; Dr. Martin L. Stevens; 8 beds; private.

Dr. Dunn's Sanitarium for Diseases of Throat and Lungs, Sunny Side, Sunset Mountain, Asheville, N. C.; private.

NORTH DAKOTA.

Oakpark Sanatorium for Consumptives, at Minot, N. D.; Dr. V. Mohn, phys.; 25 beds; private.

OHIO.

Cincinnati Branch Hospital for Consumptives, Cincinnati, Ohio; public; Dr. B. F. Lyle, phys.; 120 beds.

Municipal Tuberculosis Sanatorium, at Cleveland, Ohio; Dr. J. C. Placak, res. phys.; F. C. Emde, supt.; 75 beds; public.

Miami Valley Hospital, at Dayton, Ohio; Ella P. Crandall, supt.; tuberculosis division.

Western Hill Hospital and Sanatorium, at Price Hill, Cincinnati; Dr. Oswald Katz, res. phys.; 30 beds; semi-philanthropic.

PENNSYLVANIA.

West Mountain Consumptive Hospital, at Scranton; philanthropic. Dr. J. M. Wainwright, phys., 26 beds.

South Mountain Camp Sanitarium, at Mt. Alto, Franklin Co., Pa.; Major Oliver B. Simmons in charge.

Bide-Awhile Sanatorium, at Perkiomenville, Pa.

Tent Camp for Tuberculosis Patients of the Columbus State Hospital for the Insane; 100 beds.

Mt. Jefferson Sanatorium at Lansford (Summit Hill P. O.), Pa.; Dr. W. H. Clewell, res. phys.; 25 beds; private.

Private Sanatorium of Drs. J. T. and A. M. Rothrock, at Mont Alto, Franklin Co., Pa.; 10 beds.

The Darmady Sanatorium at Mt. Airy, Philadelphia, Pa.; Miss Margaret G. O'Hara, matron; 25 beds; private.

Sunnyrest Sanatorium, at White Haven, Pa.; Elwell Stockdale, supt.; L. F. Flick, Joseph Walsh and William Stanton, vis. phys.; 50 beds; private.

White Haven Sanatorium of the Free Hospital for Poor Consumptives, at White Haven, Pa.; Drs. Shoemaker and Heller, phys.; Dr. Jas. H. Heller, supt.; 126 beds; philanthropic.

Switch Back Sanatorium, at Lansford, Pa.

Kane Summit Hospital, at Kane, Pa.; Mary J. Hayes, supt.; 50 beds.

Chestnut Hill Hospital for Female Consumptives, at Philadelphia; Dr. A. L. Bacon, res. phys.; Rev. H. L. Duhring, supt.; 65 beds; philanthropic.

House of Mercy for Male Consumptives, 411 Spruce St., Philadelphia; Dr. W. M. Agney, house phys.; Rev. H. L. Duhring, supt.; 12 beds; philanthropic.

Philadelphia Hospital (Wards for Consumptives), Thirty-fourth and Pine Sts., Philadelphia; Dr. M. H. Briggs, chief res. phys.; 174 beds; public.

Rush Hospital for Consumptives, 44 W. 33d St., Philadelphia; Elizabeth M. Brophy, supt.; 60 beds; philanthropic.

Henry Phipps Institute Hospital, 238 Pine St., Philadelphia; Lawrence F. Flick, phys.-in-chief; Mary Mahoney, supt.; 52 beds; philanthropic.

Free Tuberculosis Hospital for Consumptives of Pittsburg and Allegheny, 253 Shady Ave., Pittsburg, Pa.; Dr. Henry N. Hall, phys.; 50 beds; philanthropic.

Tent Camp in the Pocono Mountains for the Treatment of Consumption, at Greentown, Pike Co., Pa.; Dr. Albert S. Ashmead, phys.; private.

Lucien Moss Home of Jewish Hospital, at Philadelphia; Dr. Edwin D. Jareckey, res. phys.; 31 beds; philanthropic.

Reading Sanatorium for Tuberculosis, at Reading, Pa.

RHODE ISLAND.

St. Joseph's Hospital, at Providence; Wards for Consumptives; Sister Superior, supt.; Dr. Wm. Hindle, res. phys.; philanthropic; 24 beds.

Pine Ridge Camp for [illegible] at Foster, R. I.; Dr. W. H. Peters, phys.; [illegible] beds.

State Sanato[illegible]; 100 beds.

State Almshouse, Tuberculosis Division, at Howard, R. I.; Dr. Geo. F. Keene, phys. in charge; 40 beds.

Tuberculosis Division of the State Hospital for the Insane, at Howard, R. I.; Dr. George F. Keene, supt.

SOUTH CAROLINA.

Aiken Cottage Sanatorium, at Aiken, S. C.; Dr. C. F. McGahan, phys.; 15 beds; semi-philanthropic.

Separate Building for Tuberculous Prisoners of the State Penitentiary, at Columbia, S. C.; Dr. D. J. Griffith, supt.; 50 beds.

TEXAS.

Camp Reliance, at Comfort, Texas; Dr. C. H. Wilkinson; private.

Wynne Farm Agricultural Colony for Tuberculous Prisoners, at Huntsville, Texas; Dr. W. E. Fowler.

White Gables, S. W. Texas Sanitarium, at Boerne, Kendall Co., Texas.

Sisters' Hospital, Hotel Dieu, at El Paso, Texa.; Tuberculosis Wing, 50 beds; conducted by the Sisters of Charity.

Dr. L. W. Cook's Sanatorium, at Boerne, Texas; private.

Dr. Briggs' Private Sanatorium for Diseases of Throat and Lungs, at Dallas, Texas; Dr. J. R. Briggs, phys.; 60 beds; private.

VERMONT.

The Champlain Open air Sanitarium, at South Hero, Vt.; Dr. H. D. Lewis, med. dir.; 30 beds; private.

Ward for Tuberculous Patients of the Vermont State Hospital for the Insane, at Waterbury, Vt.; Dr. M. Hutchinson, supt.; 22 beds.

VIRGINIA.

Camp for Tuberculous Patients of the Central State Hospital for the Insane, at Petersburg, Va.; Dr. Wm. T. Drewry, supt.; 70 beds.

WASHINGTON.

King County Hospital, at Seattle, Wash.; tuberculosis wards; 15 beds; Dr. Wm. T. O'Rourke, supt.; public.

WISCONSIN.

Evergreen Park Cottage Sanatorium, at Lake Nebagamon, Wis.; Dr. W. B. Hopkins, med. dir.; private; 15 beds.

Wisconsin Dells Sanatorium, at Kilbourn, Wis.

The Wisconsin Health Park Association, at Tomahawk, Lincoln Co.; Dr. W. T. Roberts, field secretary.

CANADA.

Free Home for Consumptives, at Gravenhurst, Ont.; Dr. Chas. D. Parfitt, phys. in charge; 75 beds; philanthropic.

Muskoka Cottage Sanatorium, at Gravenhurst, Ont.; Dr. J. H. Elliott, phys. in charge; 75 beds; semi-philanthropic.

Toronto New Consumption Hospital of the National Sanitarium Association, near Toronto, Ont.; Dr. Allan H. Adams, phys.; philanthropic.

Lhal Ghur Private Sanatorium, at Ste. Agathe des Monts, Quebec; Dr. Howard D. Kemp, phys. in charge; 16 beds.

Montreal Sanatorium for Consumptives, at Montreal, Quebec.

Provincial Sanatorium for Consumptives, at Montreal, Quebec.

Wolfville Highlands Sanatorium, Nova Scotia.—Dr. G. E. DeWitt, med. dir.; 8 beds; private.

LIST OF DISPENSARIES AND CLINICS FOR PULMONARY TUBERCULOSIS.

CONNECTICUT.

New Haven Dispensary Tuberculosis Clinic, Congress Ave., New Haven, Conn.; Dr. H. M. Steele, phys. in charge.

ILLINOIS.

Dispensaries of the Committee on the Prevention of Tuberculosis of the Visiting Nurses' Association, 79 Dearborn St., Chicago, Ill.; Dr. Arnold C. Klebs, med. dir.

MARYLAND.

Out-patient Department, Johns Hopkins Hospital, Baltimore, Md.

DISTRICT OF COLUMBIA.

Tuberculosis Dispensary, 605 4½ St. S. W., Washington, D. C.

MASSACHUSETTS.

Boston Dispensary, at Bennet and Ash Sts., Boston, Mass.; Dr. Edward O. Otis, supt.

Tuberculosis Clinic—twice a week—at City Hospital, Worcester, Mass.; Dr. Albert C. Gotshell, phys. in charge.

MINNESOTA.

Hamlin University Free Dispensary, at Minneapolis; Dr. G. G. Poehler, phys. in charge.

State University Free Tuberculosis Dispensary, S. Washington Ave., Minneapolis; Dr. Henry L. Ulrich, phys. in charge.

NEW JERSEY.

Orange Memorial Hospital Dispensary, at Orange, N. J.; Dr. Henry A. Tulsford, phys. in charge.

NEW YORK.

Gouverneur Hospital Dispensary, Front St., New York City; Drs. Gilbert and Bradford in charge.

Clinic for Pulmonary Diseases of the Health Department of New York City, at 6th Ave. and 55th St.; Dr. Herm. M. Biggs, director; Drs. J. S. Billings, Jr., and S. A. Knopf, assoc. directors.

Special Classes at the Vanderbilt Clinic for the Treatment of Tuberculosis; Dr. Linsey R. Williams, phys.

Special Classes at Bellevue Hospital Dispensary; Dr. James Alexander Miller, phys.

New York Postgraduate Hospital Dispensary (Dr. Russell's Classes).

Dispensary for Consumptive Poor of the New York Throat, Nose and Lung Hospital, 59th St., near 2d Ave.; Drs. Birmingham, Barton, Goldstein and Wheeler, phys.

Presbyterian Hospital Dispensary, New York City.

Harlem Hospital Dispensary, Foot of East 120th St., New York City; Dr. Charles H. Moak, phys. in charge.

OHIO.

Tuberculosis Dispensary of the Western Reserve University, at Cleveland, Ohio; Dr. T. H. Lowman, phys. in charge.

PENNSYLVANIA.

Tuberculosis Dispensary of the Scranton Society for the Prevention and Cure of Consumption, 203 Linden St., Scranton, Pa.

Henry Phipps Institute Dispensary, 238 Pine St., Philadelphia.

Rush Hospital Dispensary, Lancaster Ave. and Thirty-third St., Philadelphia; Dr. John D. McLean.

Dispensary of the White League, 1515 Arch St., Philadelphia; Dr. Joseph P. Craney, phys.

RHODE ISLAND.

Out-patient Department of the Rhode Island Hospital, at Providence; Dr. Jay Perkins, supt.

I hope that the foregoing list is a complete one, and still the possibility of errors of omission and commission exists. Worthy institutions may have been established since of which I have not heard, and thus they may have been inadvertently omitted; some institutions may have been reported to me as sanatoria, taking care of tuberculous cases exclusively, while in reality they are sanitaria or homes where all classes of patients are received. If these are mentioned in my list, they ought not to have been included. In this list we read the names sanatorium, sanitarium, hospital, home, etc. This brings me to a subject of which I like to speak in connection with the designation or naming of institutions consecrated to the exclusive treatment of tuberculous invalids.

The proper designation for an institution which receives patients afflicted with pulmonary or laryngeal tuberculosis only is, in my humble opinion, sanatorium. May I be permitted to state why I prefer the word sanatorium to sanitarium? Brehmer, the founder of the first institution of that kind, called it *Heilanstalt,* which means healing institution; and the word "sanatorium," from the Latin *sanare,* to heal, gives certainly a better equivalent for the German word than the word "sanitarium." This latter word is derived from the Latin, *sanitas,* health, and is usually employed in this country to designate a place considered as especially healthy, a favorite resort for convalescent patients, or an institution for the treatment of mental or nervous diseases. It is well and useful from all points of view to make a distinction that the special uses and purposes of the tuberculosis institution may be understood readily.

The word "sanitorium," so frequently used, is simply incorrect. May I say in addition that the word sanatorium has been adopted as an official name by the United States Government for the institutions for its consumptive sailors and soldiers; also that the name of the Massachusetts state institution is sanatorium and not sanitarium, and that the former Loomis Sanitarium has been changed to Loomis Sanatorium, Sharon Sanitarium to Sharon Sanatorium, and that all the more recently established institutions for the exclusive treatment of tuberculous patients in this country, Canada and England have adopted the name sanatorium? As mentioned above, Germany calls these institutions *Heilanstalten,* and all other European nations call institutions of that kind sanatoria.

Special hospitals for the treatment of the tuberculous patients are particularly useful institutions because they are, as a rule, located in or very near large centers of population. They are supposed to receive the more advanced and hopeless cases which in their home environment can not or do not receive the necessary care, and often constitute centers of infection. Of the value of such institutions I can not speak too highly, and personal experience at the Riverside institution of the health department of the City of New York has made me quite enthusiastic over the work which can be done in such establishments. This institution, which we call Riverside Sanatorium, located on North Brother Island, opposite East 138th St., was established on the urgent appeals of Dr. Herman M. Biggs, the general medical officer and his colleagues of the board of health. Thanks to a law, which I believe exists only in New York, and which Dr. Biggs promulgated, we have in New York a right to remove any tuberculous patient from his home to one of the city tuberculosis institutions if in the opinion of the medical inspector the patient constitutes a danger to his environment.

The results obtained with these patients forcibly removed from their unhygienic surroundings to our Riverside Sanatorium, which is of course only a city sanatorium, is surprising. It is very often one of the hardest things to induce patients to leave the institution, when, in our opinion, the disease has been sufficiently arrested and warrants the discharge of the patient. The clean, sanitary surroundings, the regular mode of life, and the personal interest which is taken in every case, makes most of these patients become attached to the institution, and the prospect of being obliged to return to unsanitary environments and other former unpleasant conditions is the cause of their disinclination to leave.

The difficult problem of what to do with the cured consumptive, of which I will speak later on, has never come to me with more seriousness than when I am about to discharge a patient from the Riverside Sanatorium. Yet I would suggest that the law which gives our health department the right to forcibly remove to a special tuberculosis institution a patient who plainly constitutes a danger to his environment, is a wise one and well worth trying in other large American cities. Even if we are not able, for the present, to provide work for all our discharged consumptives (we strive to give employment to as many as possible as helpers and orderlies), the training they have received and the orderly life they have been forced to live, will rarely fail to leave its impression. I can modestly claim that a goodly number of the men and women sent out from the health department's institution at North Brother Island, whether cured or only improved, on their return to their former homes constitute themselves missionaries and hygienic examples among the members of their families, their neighbors and friends.

The "Homes for Consumptives" I have never liked, for, from my experience of a visit to a number of them I gained the impression that the so important hygienic and sanitary measures in these institutions are never so rigidly adhered to as in sanatoria and special hospitals. There are, as a rule, fewer nurses and fewer attendants, and herein, I believe, lies the mistake, for if the patient ever needs the constant care of a watchful nurse it is in the last stages of the disease. Now, the word "Home" indicates that the unfortunate consumptive will remain there until his dissolution. This is another important reason why I do not like the word "Home." I am convinced many enter the home for consumptives who before were perhaps full of hopes for a recovery, and many even enter it in a condition when recovery would seem possible. Why may we not just as well call every home a sanatorium and make it such? This is what it should be—a sanatorium—a healing institution.

The next class of institutions which we wish to speak of are seaside sanatoria for tuberculous and scrofulous children. I have only a single one on my list; they are worth our consideration. Seaside sanatoria for scrofulous and tuberculous children serve to take care, throughout the whole year, of children afflicted with joint, osseous and cutaneous tuberculous troubles, and all children afflicted with milder manifestations of tuberculous character, generally designated as scrofulosis. Another important factor of such seaside sanatoria is to attend to the after-treatment of children operated on for tuberculous joint troubles in the city, and to keep them during their convalescing stage. It was my privilege to serve for some time as assistant to such an institution in France. There, in the celebrated institution at Berck-sur-Mer, belonging to the city of Paris, we received weekly from ten to twenty-five little ones who had been operated on. The change which was wrought in the faces of these children after a few weeks' sojourn at the seaside was something hard to believe. These pale-faced; underfed children, coming mainly from the homes of the poor of Paris, became rosy-cheeked and healthy looking youngsters in the ozone-laden atmosphere of the sea coast. A school with a number of teachers is attached to that institution so that the intellectual development of the children may not suffer during their sojourn in the sanatorium. I trust that the example given by the New York Society for improving the Condition of the Poor in the creation of such an institution at Seabreeze near New York, will find numerous imitators among the philanthropists and municipalities of our country.

It must be evident to every physician and sanitarian that multiple sanatoria for the treatment and care of tuberculous children is one of the most important factors in the fight against consumption. The child thoroughly cured from its tuberculous affliction by the best of surgical, orthopedic, hygienic, dietetic and climatic treatment is not likely to become a consumptive adult, while every child with a neglected local tuberculosis must always be considered a candidate for consumption.

Pulmonary tuberculosis is relatively rare in little ones, but even for those few, I am happy to say, we have some provisions in the State of New York. As you will have noticed in my statistics, the Seton Hospital as well as the Loomis Sanatorium, have made special provisions to treat children suffering from pulmonary tuberculosis.

The next kind of institution to be considered as an important factor toward the solution of the tuberculosis problem is the special tuberculosis dispensary. As a definition of this institution permit me to use here the same words which I used as introductory remarks in my address recently delivered before the New York Academy of Medicine to open the discussion at a symposium on special tuberculous dispensaries ,

A modern tuberculosis dispensary is an institution created, built, equipped and managed for the exclusive treatment of indigent persons afflicted with pulmonary or laryngeal tuberculosis. The modern conception of the treatment and management of ambulatory tuberculous cases demands the creation of such institutions. Those of us who began our medical career fifteen or twenty years ago will remember the almost universal indifference of our teachers as well as ourselves when in our dispensary practice we came across a tuberculous case. The sooner we could dispose of it the better we thought we did our duty. Some cough mixture and some cod-liver oil was the routine treatment. There was no time. nor did we think it necessary, to teach the patient to take any precaution with his infectious sputum, or to give him any other hygienic instruction. The value of breathing exercises in such cases was thought of by but few.

How different is it to-day. To avoid as far as practicable the contact of the tuberculous patient with other patients, separate classes are created in many of our general dispensaries; but the ideal, of course, must always be the entirely separate and especially constructed tuberculosis dispensary.

Besides the institution with which I have the honor of being connected, and which, to the best of my knowledge, is the first municipal dispensary especially built for that purpose in the United States, there are at this moment in New York six other dispensaries which have special classes for tuberculous cases. From my list you will see that Boston, Baltimore, Philadelphia, New Haven, Scranton, Minneapolis, Chicago, Worcester and Providence are the other cities in the United States which have thus far created special tuberculosis dispensaries.

The setting aside of a ward for tuberculous patients in a general hospital, an insane asylum or prison seems to me, while not nearly as good as a sanatorium, special hospital or special camp, the next best thing to it. Quite satisfactory results can often be obtained when in a general hospital the best ventilated and best lighted ward—which is usually the upper story—can be used for that purpose. The results in a special tuberculosis ward at a general hospital can be enhanced when there is a roof garden in connection with the ward, and outdoor life and outdoor sleeping can thus be inaugurated in the city. This is very desirable during hot weather, and in connection with it I would suggest that on the top of nearly every hospital a roof garden can be improvised with a covering of canvas to which are attached side flaps when protection from sun and rain is necessary; with a few flowers and shrubs here and there this improvised roof garden can be made very attractive, and the whole installation accomplished with relatively little expense.

By an exhaustive inquiry, previous to the publication of my article, "A Plea for Justice to the Consumptive," I learned from authorities well qualified to speak on this subject that tuberculosis more frequently follows the development of insanity than precedes it. Or, if I may use here the words of Prof. Edward D. Fisher, who kindly wrote me at the time: "Tuberculosis is more common in the insane as a result of lowered vital condition than as a cause of the mental disease." When the insane individual, with a thus lowered vital condition, comes in close prolonged contact with another insane person who is tuberculous, is it a wonder when a non-tuberculous insane person in an overcrowded insane asylum contracts tuberculosis?

That something can be done for even the insane tuberculous patient, that all can be isolated and a number of them cured of both their physical and mental infirmities, has been beautifully demonstrated by the tent life inaugurated by Dr. McDonald and his associates at the Manhattan State Hospital for the Insane on Ward's Island.

Concerning tuberculosis in prisons, I wish to speak with particular emphasis, for while here and there provisions for the treatment of tuberculous prisoners have been made, there is still much and urgent work in this direction before our public sanitarians and the managers of prisons and reformatories in many of the states of the Union. For the good of society we must confine the criminal and punish him, and above all, we seek to reform him by years of seclusion, according to the gravity of his offense. But however great the crime he may have committed, we have no right to sentence him to contracting tuberculosis, which, as prison life is now in many of our states, must almost invariably result in death. The best solution of the tuberculosis problem in regard to prisons is, to my mind, that which has been successfully tried by the Texas Agricultural Colony for Tuberculous Prisoners. Instead of letting them linger and suffer in isolation and die in degradation, the Agricultural Colony of Texas strives to make of its tuberculous prisoners useful and healthy members of society. It is always a pleasure to note that the most humane undertakings are blessed with financial success; $25,000 remained as net earnings during the first year of the existence of the Texas Agricultural Colony for Tuberculous Prisoners. May the example of this state lead to the establishment of many such colonies.

My suggestions for the establishment of agricultural and horticultural colonies are, however, not only intended for tuberculous prisoners. I plead with equal emphasis for the establishment of such for the honest tuberculous patients who have faithfully passed through the schooling in a sanatorium; who have learned to prevent infecting others or reinfecting themselves; who leave the sanatorium virtually cured, but by no means strong enough to take up the old occupations which, in many instances, had rendered them tuberculous. It is a grave and serious problem what to do with the cured tuberculous patient, who was formerly a stone cutter, a printer, a tailor or a hat maker, etc. Shall we return him to his former unhygienic occupation—to his insanitary work or sweat shop? The time and money expended for sanatorium treatment would have been spent in vain if these toilers must return to the same environments. It is a medical, social and financial problem, and those who provide sanitary occupation for cured consumptives so that they may live and labor after their restoration to health and remain well, will do as much for the solution of the tuberculosis problem as the founders of sanatoria and special hospitals.

This report on the antituberculosis work done during the last few years would indeed be incomplete without mentioning the first tuberculosis exposition in the United States, held in Baltimore from Jan. 25 to Feb. 1, 1904. From a local attempt to give the people of Maryland an object lesson in the prevention of tuberculosis, this exposition grew to be a national enterprise, an educational center of the history, distribution, variation, causes, cost, prevention and cure of tuberculosis.

The exposition was held under the auspices of the Tuberculosis Commission of Maryland conjointly with the board of health of the same state and the Maryland Public Health Association. There were exhibits from all parts of the United States, from Canada and from other foreign countries. The exposition was divided into numerous divisions, one of the most instructive being the statistical section. Mortality and morbidity of tuberculosis and their relation to race, age, sex, occupation, heredity, marriage, topography and geography were graphically demonstrated. The charts exhibited by the Prudential Life Insurance Company, showing the variations of the occurrence of tuberculosis in different races, sexes and classes of people, were particularly interesting. A large map had been prepared by the Baltimore health board, showing all the houses in which there has been a death from tuberculosis in the ten years from 1890 to 1900. Each of these 11,582 deaths was indicated by a red dot; the worst area, consisting of ten squares crowded with negroes, showed 175 deaths. Another section of the exhibit showed sanitary and insanitary tenements, factories and workshops. Pictures of "lung blocks," that is to say, buildings which are particularly infected by tuberculosis, were shown from the city of New York and Baltimore. They taught a fearful object lesson of overcrowding, filth, lack of air and light.

The committees for the prevention of tuberculosis of New York, Chicago, Boston and Baltimore showed by statistics, literature and photographs the work they had accomplished independently of municipal aid. Nearly all the states of the Union and the provinces of Canada, where state and municipal health boards are engaged in the prevention of tuberculosis, sent charts, drawings and pictures, showing their really surprising activity during the last few years. New York City took the lead by showing a reduction in the mortality from tuberculosis by one-third of what it was ten years ago. The health department of New York City also exhibited its celebrated "Circular of Instruction to Consumptives and Those Living with Them," besides photographs of its Riverside Sanatorium and the new Clinic for Pulmonary Diseases.

The directors of nearly all the American and Canadian sanatoria and special hospitals for the treatment of consumption sent photographs of their institutions. It was my privilege to send my collection of views—German, English, French, Swiss, Scandinavian and Austrian sanatoria, and also the excellent photographs of Brehmer, Dettweiler, Koch and Trudeau. (The latter is the pioneer of the sanatorium treatment in America.)

There were a large number of tents, model cottages, reclining chairs, elevated, fixed, pocket and other kinds of spittoons. Of great interest was the excellent collection of books and portraits sent by Professors Osler and Jacobs. The pathologic exhibit, which owed its existence to Professor Welch of Johns Hopkins Pathologic Department, was unusually interesting. It was visited by many physicians and students. Trained demonstrators were constantly present to explain the pathologic specimens and bacteriologic exhibits. A very unique way of making the exposition a thorough educational center for the laity was arranged by Dr. Fulton. He divided the visitors in groups of twenty or twenty-five, and assigned to each of these one of the young enthusiastic physicians who had volunteered their services as guides and demonstrators. A very important and interesting feature of the exposition was the evening lectures by a number of specialists.

The tuberculosis exposition was an unqualified success. It had not only the support of the best men of the Baltimore medical profession, but His Excellency, the Governor of Maryland, His Honor, the Mayor of Baltimore, and a number of distinguished Baltimore citizens lent their moral and financial support to the success of the undertaking.

A similar exhibition, although on a much smaller scale, took place recently in Boston (October 1904), in connection with the Mechanics Fair. The Association for the Relief and Control of Tuberculosis of Boston had arranged a most creditable and instructive exhibit of things and literature relating to the modern modes of prevention and treatment of tuberculosis. The citizens of Boston and the surrounding country paid unusual attention to the tuberculosis corner. It would seem that such object lessons in the prevention of tuberculosis might well be imitated by other [illegible] cities.

I do not report this time anything concerning laws to combat bovine tuberculosis, nor have I enumerated the special regulations or ordinances issued concerning the prevention of tuberculosis in man. Few changes have occurred since my last report (November, 1902.) I wish to state, however, that an additional number of cities have enacted antispitting laws. Koch's declaration at the last international tuberculosis congress in London, concerning the relative rarity of the transmission of bovine tuberculosis to man, has not influenced American authorities to lessen existing measures to prevent the spread of bovine tuberculosis or its transmission to man; yet there is a great variety in these bovine laws in the different states, and perhaps a greater variety existing concerning the laws and regulations to prevent tuberculosis in man.

As in my previous report, so must I say in this one that a "ministry of health" at Washington, a "United States Board of Health," to be in constant touch with all the state and city boards of health in the Union, with effective laws to combat tuberculosis in man and beast throughout the Union, is the only remedy for the lack of uniformity and effectiveness of antituberculosis laws in this country.

To any one who has studied the tuberculosis problem in its social as well as in its medical aspect, it must be evident that its solution can only be accomplished by effectual co-operation. I have just expressed my views as to how the work of the state and city boards of health could be made more effective by co-operation with a national board of health. The purely medical aspect of the disease will, I know, be intelligently studied by our new organization above referred to; but what I plead for most insistently is that the philanthropists, laymen and physicians, composing the various organizations, commissions and committees, may be in constant co-operation with a "Federal Committee" or permanent "National Bureau for the Prevention of Tuberculosis," to which the new society, I trust, will give the incentive, in order to avoid useless multiplication of work on the one hand, and increase effectiveness of needed work on the other. For example, if two adjoining states find it advantageous to combine in establishing a state sanatorium, let them not hesitate for reason of local pride to carry out the project. A large city may have a dozen associations, commissions or committees on the prevention of tuberculosis. When it comes to establishing an institution, let them be united in the project; and when it comes to taking care of a needy patient, let him be referred to a single subcommittee, whose duty it should be to investigate the case and provide for the patient in such a way as is best for his own interest and that of the community. The philanthropist should not give blindly, but should inform himself first where the need of his help is greatest, for there are many phases in the solution of the tuberculosis problem. While in one city it might be wiser to establish a dispensary for tuberculosis; in another it may be wiser to start a sanatorium, and in another an agricultural colony may be needed; while in others the creation of more playgrounds, parks, public baths and model tenements may be of the greatest importance and the greatest necessity.

The little motto with which I prefaced, some years ago, an essay entitled "Tuberculosis as a Disease of the Masses and How to Combat It," is applicable to-day, and I believe will be as long as there is a tuberculosis problem: "To combat tuberculosis as a disease of the masses successfully requires the combined action of a wise government, well-trained physicians and an intelligent people."

Alcoholic Nostrums Too Strong for Lumbermen.—Loggers in the northern woods seek to discourage the use of patent medicines in their camps, as the "lumber-jack" is inclined to use them as a substitute for alcoholic exhilaration, to the subsequent disturbance of his working powers.—*Northwestern Druggist.*

THE ASSOCIATION OF OPTIC NEURITIS AND FACIAL PARALYSIS.*

EDWARD A. SHUMWAY, B.S., M.D.

PHILADELPHIA.

The relative infrequency with which optic neuritis occurs in association with facial paralysis makes the following case worthy of record:

The Patient.—Miss G. W., age 19, came to the eye dispensary of the University Hospital, Philadelphia, Dec. 8, 1903, in the service of Dr. George E. de Schweinitz, to whose courtesy I am indebted for permission to publish the case. She complained of blurring of print and aching in the eyes in reading or other close work. She was unaware that her eyesight had failed, but examination showed that vision of the right eye was 6/15 and of the left eye only 6/30. She was able to read Jaeger 0.50 D. with each eye at 13 cm. slowly.

Ophthalmoscopic Examination.—There was atrophy of each optic nerve, more advanced on the left side. The nerve heads were covered with a delicate, white tissue, which blurred their edges, and could be traced in the form of white lines along the central vessels of the retina. The veins were of good caliber, but the arteries were reduced to mere threads at the disc, though they were somewhat fuller at a distanc from it. The fundus in each eye was otherwise normal. The picture was, therefore, a typical one of post-papillitic atrophy. The pupils were equal and responded rather sluggishly. The visual fields are shown in the accompanying chart (Fig. 1). They were moderately contracted, both for form and color, but showed no color scotomas. Under reduced illumination O. D. vision was only 6/30, and O. S. 2/60. With de Wecker and Masselon's photometric test the light sense was 4/10 in the right and 1/10 in the left eye. There was in addition a flattening of the right side of the face and a decided enophthalmus on this side.

History.—Careful questioning as to previous history brought out the following facts: She was the youngest of ten children, two of whom died in early childhood, one of diphtheria and the other of "enlargement of the heart." The rest were healthy and had had no eye trouble. She had always been very pale, and suffered from irregular menstruation, the amenorrhea lasting sometimes for several months. She had had measles alone of children's diseases, and no recent acute illness of any kind. On Nov. 1, 1902, she consulted Dr. James E. Talley of Philadelphia for paralysis of the right side of the face, which appeared after exposure to a draught, and was preceded and accompanied by severe pain in the lower jaw and teeth, and in front of the ear, on the same side. Dr. Talley found a typical facial paralysis of the peripheral type, but noted no areas of anesthesia. The face was flaccid, the mouth was drawn to the left and she was unable to close the right eye. There was no ear disease present, but she was very anemic, and gave the history of menstrual disturbance. Blood examination showed red blood corpuscles 4,268,000, white blood corpuscles 5,200, and hemoglobin 90 per cent. Dr. Talley thought the blood examination incorrect, especially as to the percentage of hemoglobin, owing to a defect in the instrument, but she did not return for further examination. The urine was alkaline, specific gravity 1,022, and contained neither albumin nor sugar; microscopically it was negative, except for phosphates.

Treatment.—She was treated with salicylates, strychnia, massage, electricity, and later iron. Three weeks afterward there was some return of motion in the face and the mouth was straighter, but the eye could not be closed. Early in December, 1902, she left the city, and was under the care of Dr. R. P. Heilman of Emporium, Pa., who prescribed iron and general tonic treatment. Dr. Heilman reports that he detected some anesthesia of the right side of the face, but no complaint was made of any disturbance of vision. The patient says, however, that on one occasion, when sent to the library for a book, she was unable to see the title in the poorly lighted room, but aside from this did not have her attention called to her eyes, which were neither painful nor in any way inflamed. On her return to the city in March, 1903, the motion of the face had become nearly normal, but her mother stated that the right eye was "smaller" at the time than the left, although they had been of the same size before. Dr. Talley saw her in October, 1903, and again treated her for irregular menstruation.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Examination.—Examination by Dr. William G. Spiller showed a slight stiffness of the right side of the mouth; the eye could be readily closed; there were no areas of anesthesia of the face or conjunctiva; the skin was entirely normal in appearance, but there was a distinct loss of subcutaneous fat which made the face flatter on the right side, and a sinking backward of the eyeball, as the accompanying photograph shows (Fig. 2). The electrical reactions, tested by Dr. C. S. Potts, were normal and no weakness of the muscles of mastication could be detected.

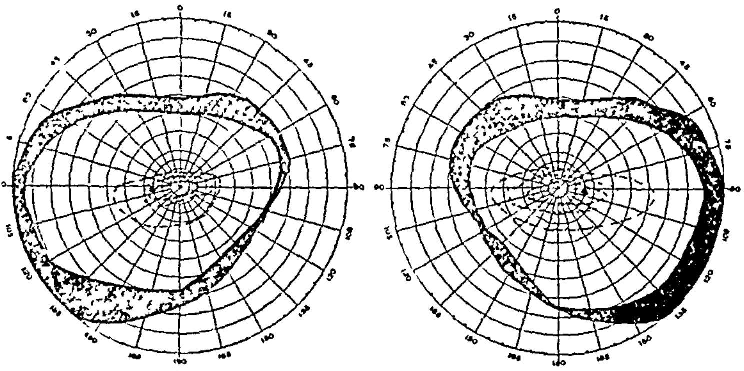

Fig. 1.—Case 1. Fields taken Jan. 6, 1904. Concentric contraction for form and color. No scotomas.

Examination by Dr. William B. Stanton in the medical dispensary showed normal lungs, slight extension upward of the heart dullness, on the left of the sternum, and a soft systolic murmur on lying down, heard best at about the third interspace, just to the left of the sternum, which disappeared on standing, and was probably hemic. The pulse was rapid but regular. Blood examination showed red blood corpuscles 4,248,000, white blood corpuscles 13,500, and hemoglobin 58 per cent. The urine was slightly cloudy, 1,030, no albumin or sugar; numerous epithelial cells but no casts.

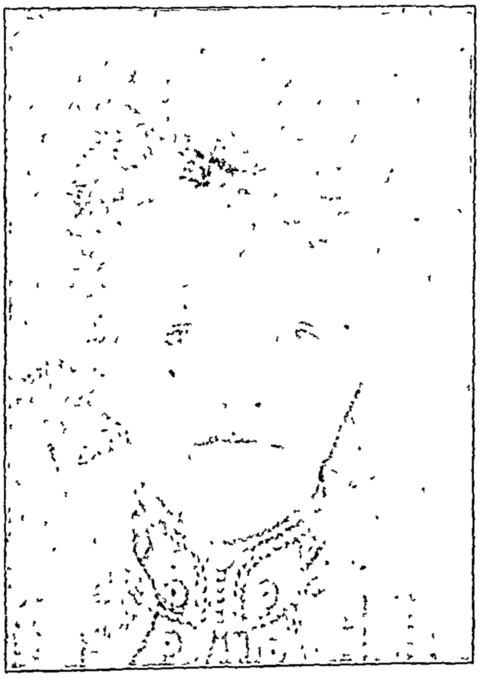

Fig. 2.—Case 1. Flattening of face and enophthalmus after facial paralysis associated with double optic neuritis.

Treatment.—Under atropin a vision of 8/22 was obtained in each eye, with + 0.25 s + 0.25 c ax. 90°. The patient was given strychnia sulphate, gr. 1/40, and Blaud's mass, gr, iii. three times daily. Subsequent examination showed a decided improvement in her general condition; her color became better, menses were regular and free from pain, and the blood test on April 6, 1904, showed red blood corpuscles 5,790,000 and hemoglobin 70 per cent. The vision at present is 6/20 in the right and 1/45 in the left, and the fields, taken May 20 (Fig. 3), show a slight reduction of the form field, and a marked reduction for red and green, but no color scotomas.

Summing up, we have an anemic girl with menstrual disturbance, who developed a peripheral facial paralysis of the right side, followed by flattening of the face and enophthalmus, which was associated with double optic neuritis and atrophy.

Several questions suggest themselves in considering the history of the case. In the first place, the etiology of the optic neuritis and the relation between it and the facial paralysis; secondly, the cause of the flattening of the face and the enophthalmus. Unfortunately, it is impossible to determine definitely the time of occurrence of the optic neuritis. The girl, however, had no trouble with vision or in the use of her eyes while at school, or in her occupation as a stenographer, and no deterioration in vision was noted until her absence from the city, during the attack of facial paralysis. This history is vague, but as no asthenopic symptoms were present until she commenced to use her eyes, on her return, we may assume, although without certain proof, that the neuritis and facial paralysis occurred about the same time. The association of the two conditions is quite uncommon. In 1894 Hoffmann[1] described two cases of facial paralysis, associated with low-grade optic neuritis, retrobulbar in type, with central scotomas for colors, and considered them as cases of multiple neuritis due to cold. He said that optic neuritis was very rarely associated with facial paralysis, and that Gowers had seen three cases of rheumatic optic neuritis in women, two of whom had suffered from neuritis of the facial nerve and other rheumatic affections previously. De Schweinitz[2] reported two cases in 1899, in which the optic neuritis, which was retrobulbar in type, with central scotomas, occurred two years after an attack of facial paralysis. In the first case, both eyes were affected, but not at the same time; in the second, there had been several attacks of sclerokeratitis, two attacks of right facial paralysis, and finally left-sided optic neuritis. Leszynsky[3] reported a case before the New York Neurological Society in 1900, in which, during an attack of facial paralysis, severe pain appeared in the supraorbital and temporal regions on the left side, which lasted about one week, when the

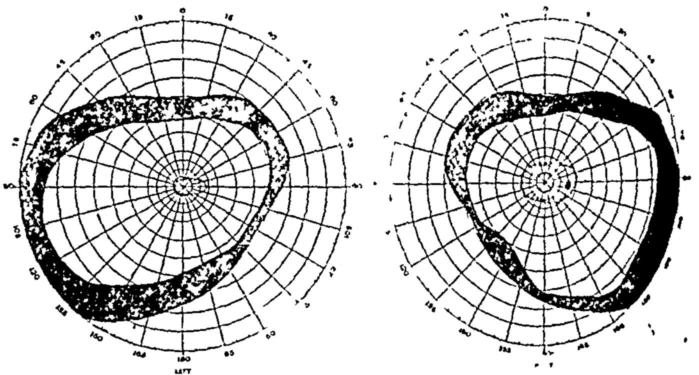

Fig. 3.—Case 1. Fields taken May 20, 1904. Moderate contraction of form fields. Marked contraction of color fields.

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[1] Hoffmann: Deutsche Zeitschr. f. Nervenheilkunde, 1894, vol. v.

[2] De Schweinitz: Jour. Mental and Nervous Diseases, May, 1899.

[3] Leszynsky: Jour. Mental and Nervous Diseases, March, 1900.

patient became blind in this eye; the ophthalmoscopic examination revealed a well-marked papillitis. He attributed the optic neuritis to periostitis in the optic canal, so that the condition was a multiple neuritis, probably due to rheumatism, although syphilis could not be positively excluded.

These 7 cases added to the present one, make a total of only 8 reported; the association is, therefore, quite rare. A number of cases of optic neuritis, however, has been reported in polyneuritis. According to Remak[4] in Nothnagel's System, it has been found by E. Remak, Goldscheider and Fuchs in spontaneous (infectious) polyneuritis, by Schanz in puerperal forms, with carcinoma (autointoxication) by Miura, in alcoholic polyneuritis by Lillienfeld, Giese and Pagenstecher, and Jolly. Other cases have been reported since Remak's article was written. For example, Wetz, in his inaugural dissertation, Giessen, 1903, gives a case of bilateral recurring retrobulbar neuritis, appearing at long intervals, associated with polyneuritis. But even the number of such cases is limited, and, with but few exceptions, the neuritis is retrobulbar in type, in both series.

Facial paralysis, according to Bernhardt,[5] is caused in about 72 per cent. of all cases by rheumatism or cold, and in our case the history of taking cold after exposure to a draught, points perhaps to this cause as the etiologic factor. Rheumatic optic neuritis was first carefully described by Parinaud[6] in 1884, and we owe most of our knowledge of these cases to his studies. In the majority of instances there is a family and personal history of rheumatism; the acute cases usually commence with deep orbital pains, and pain in movement of the eyeballs, which is increased by pressure on the eye. Very often it is accompanied by conjunctival and scleral congestion. The neuritis may be simple in type, or of the character of a choked disc; it is ordinarily monocular, and when it attacks both eyes it is successive. The most characteristic feature is the complete amelioration, which may follow a state of affairs apparently very grave, as the visual acuity may fall to zero, during the attacks, and yet return nearly to normal afterward. In several important respects, therefore, our case differs from the typical one of rheumatic neuritis. The absence of a rheumatic history, of spontaneous pain in the eyes, or on movement, the bilateral occurrence, and the permanent reduction in vision to 6/20 on one side and 1/45 on the other, with the formation of considerable connective tissue on the surface of the disc, would point to some other factor. Two conditions must be considered here—the chloranemia and the menstrual disturbances, in both of which optic neuritis may occur, and in which complete or partial recovery is possible, in contradistinction to the cases due to brain tumor, where the ultimate result is usually complete blindness, with marked atrophy of the papilla. The blood condition in our patient did not show a sufficient reduction in the hemoglobin to warrant a diagnosis of chlorosis, however, so that we must assume either that the menstrual disturbance was the direct cause, or else that the facial paralysis and optic neuritis were due to one and the same, still undetermined, perhaps bacterial, infection, a belief which is shared at present by many neurologists.

The other question as to the causation of the enophthalmus and flattening of the face opens up problems which are still under debate in neurologic circles. I have been unable to find any mention of such a condition following facial paralysis. Gowers,[7] in his well-known text-book, says that "muscular wasting follows the nerve degeneration in the face, as elsewhere, and in those who have but little subcutaneous fat, the loss of tissue may be perceptible." But "the nutrition of the subcutaneous tissues in unaffected, and true facial hemiatrophy never results from disease of the facial nerve." Nothing is said, however, of the occurrence of enophthalmus. Through the kindness of Dr. Wm. G. Spiller of Philadelphia I was able to examine a case of his, presenting the same condition, and I am permitted to refer to it here:

> The patient, Mrs. Rosa K., aged 52, suffered from peripheral right-sided facial paralysis after exposure to cold, in July, 1902. At the time of the attack she had severe pain on this side of the face. On examination in February, 1904, nineteen months afterward, the paralysis had disappeared except for slight stiffness of the face, but there was a decided flattening of this side, and distinct enophthalmus. The eyes, however, showed no ophthalmoscopic changes, and vision was normal in each eye, with the proper correction of a low refractive error.

The two cases have a history in common of paralysis following exposure to cold or draught, and of severe pain in the face and jaw lasting for several days. Neither presents a picture of typical facial hemiatrophy, for atrophy of the skin, with discoloration and thinning, constitutes the chief sign in this disease, and is absent in both. Simple wasting of the muscular tissue, as described by Gowers, would not account for the enophthalmus, and we are forced to look for some other cause. Sensory disturbances in facial paralysis, both subjective and objective, have long been known. Pains in the head and corresponding side of the face very commonly precede or accompany the attack, and some authors (Testaz[8]) ascribe a prognostic value to them. Disturbance of sensation is less rarely mentioned. Gowers has observed an anesthetic area in front of and behind the auricle, and, in more recent times von Frankl-Hochwart[9] and his pupil, Hatschek, have found decrease in general sensitiveness, pain and temperature perception in moderate degree in about 50 per cent. of their cases. More rarely vasomotor secretory changes are observed. There exists, further, in literature, according to Bernhardt,[5] a number of observations in which, simultaneously with more or less severe facial paralysis, there appeared an eruption of herpes zoster facialis or occipito-collaris, or both together. Von Frankl-Hochwart[9] believes that the seventh nerve carries a number of sensory fibers at its exit from the mastoid foramen, in addition to those which have passed into the chorda tympani, during its passage through the fallopian canal. This view has been strongly contested by many, but has received additional proof from experiments of Van Gehuchten,[10] who has shown that the nerve contains a certain number of sensory fibers which arise in the geniculate ganglion, and he believes that the nerve of Wrisberg is its sensory root. This question is still a matter of dispute, which we can leave to the neurologists to settle.

In our cases the assumption of involvement of possible sensory fibers in the seventh nerve will not be sufficient, as it would not account for the enophthalmus. This must be due to some nutritional disturbance of the orbital tissues, and as these are dependent on the supply from the fifth nerve, we must assume, I think, a neuritis of this nerve on the affected side. This, moreover, would explain the severe pain experienced by both patients, and the disturbance of sensation in the first. In the presence of polyneuritis involving the fifth and seventh nerves in both, I believe it would be justifiable to consider the optic neuritis in the first as due also to the same cause, infectious in character, rather than to invoke the additional factor of the menstrual disturbance or of the alteration in the blood.

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[4] Remak and Flatow: Nothnagel's Specielle Pathologie u. Therapie, vol. xi, p. 111, No. 4; full literature given here.

[5] Bernhardt: Ibid., vol. xi, No. 1, Erkrankungen der peripherischen Nerven.

[6] Parinaud: Report in Annales d'Oculistique, vol. cv, Nos. 5 and 6.

[7] Gowers: Diseases of the Nervous System, second edition.

[8] Testaz: Paralysie douleureuse de la septième paire. These de Paris, 1887.

[9] v. Frankl-Hochwart: Neurologisches Centralblatt, 1891.

[10] Van Gehuchten: Jour. de Neurologie, xiv and xv.

CONCLUSIONS.

1. Optic neuritis is occasionally associated with facial paralysis, either alone or as part of a multiple neuritis; the etiologic factor may be rheumatism, but at times appears to be an infection, the nature of which is as yet undetermined. The optic neuritis is usually of the retrobulbar type, but a decided papillitis may be present, and be followed by more or less marked atrophy. In cases of multiple neuritis, of the cranial nerves, the eyegrounds should be examined for possible optic nerve complication.

2. In facial paralysis, flattening of the face and enophthalmus may appear, and are to be considered as due to a neuritis of the fifth nerve, and not to involvement of possible sensory fibers in the facial nerve.

DISCUSSION.

Dr. John E. Weeks, New York City, said that an interesting feature is the enophthalmus and the approach to facial hemiatrophy. He has recently observed a case in which this was a pronounced feature. There was no affection of the optic nerve, only of the facial nerve. It was a case in which the lesion was primarily an affection of the fifth nerve and, in this case, not only was there a disappearance of the fatty tissue of the face on the right side, but the bony structure was also reduced and the enophthalmus was marked. There was also atrophy of the iris which has not previously been noticed in cases of this kind. The pupil was widely dilated and immobile.

Dr. Edward Shumway said that, of course, true hemiatrophy is very different, because in such cases the essential condition is an atrophy of the skin itself, which is later followed by atrophy of the subcutaneous tissue and of the bony skeleton. Here the skin is unaffected.

A BACTERIOLOGIC STUDY OF THE BLANK CARTRIDGE.*

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It appears from statistics in The Journal of the American Medical Association, August 29, 1903, that of 392 cases of tetanus incident to accidents on the previous July 4, 363 followed wounds from the blank cartridge and the toy pistol. In other words, 92 per cent. of the tetanus cases were apparently attributable to wounds from blank cartridges.

Dr. A. I. Ludlow, assistant resident surgeon at the Lakeside Hospital, succeeded in isolating *B. tetani* from the blank cartridge wounds in one out of five fatal cases of tetanus, but cultivated the *B. aerogenes capsulatus* in four. In none of these cases was there emphysema nor emphysematous gangrene of the wounds, which were routinely treated by free incision and packing with iodoform gauze. In one of these which came to autopsy I failed to isolate *B. tetani* from the wound of the hand, but obtained *B. aerogenes capsulatus* from the local lesion and heart's blood. There was no gaseous emphysema of any organ.

These findings led me to investigate several makes of blank cartridges, and the results of these investigations form the basis of the present paper. The infectious agents concerned in these wounds (apart from the contents of the cartridge), may come from the skin and parts of clothing introduced. These latter sources of infection were not considered.

SOURCE OF MATERIAL.

The cartridges used were manufactured by the Peters Cartridge Co., the Winchester Arms Co., and the Union Metallic Cartridge Co., and were bought in the open market at various times and places.

CULTURAL EXPERIMENTS.

(*A*) *Wads.*—In both the cultural and animal experiments the wads were extracted with a sterile instrument, every care being taken to exclude accidental contamination.

The wads were placed in a 1 per cent. glucose bouillon, and incubated under anaërobic conditions (usually in Novy jars) at body temperature, for from 3 to 5 days, when coverslip preparations were studied. Not infrequently slender bacilli with end spores suggestive of *B. tetani* were seen. Nine cultures containing these tetanus-like bacilli were inoculated in fresh hematoma in the thigh of guinea-pigs. All of these animals survived but one, which died at the end of a month without symptoms of tetanus. These tetanus-like bacilli decolorized by Gram and were proved by cultural methods to be identical with a pseudo-tetanus bacillus discovered by Bain in blank cartridges. Many cultures contained a stout bacillus with square ends, apparently encapsulated, and subcultures made on glucose agar showed abundant gas formation. Nine rabbits injected with these gas-forming cultures, and killed ten minutes afterward, showed after from 8 to 20 hours' incubation marked gaseous emphysema, and *B. aerogenes capsulatus* was isolated from them all in pure culture. All efforts to demonstrate the presence of *B. tetani* failed. In a total of 250 wads examined by culture, the *B. aerogenes capsulatus* was demonstrated in sixty-six, or 26.4 per cent., and from sixty-one it was isolated in pure culture. Two of these were worked through all media, but in general the cultural characteristics on glucose agar, milk, and blood serum, together with the morphology, the capsule formation, the positive Gram stain, and the failure to grow aërobically, were deemed sufficient for identification. It is interesting to note that spore formation occurred in old milk and agar cultures, as well as on blood-serum. Some difficulty was experienced in separating *B. aerogenes capsulatus* from the other anaërobic organisms present in wads until Kitasato's method of heating for one hour at 80 degrees C. was adopted. It invariably survived this. That the explosion of cartridges neither kills nor inhibits the growth of *B. aerogenes capsulatus* was demonstrated by shooting the wads into jars containing melted glucose agar, which on incubation gave abundant growth of this organism in four out of five experiments.

The following table gives the proportion in which *B. aerogenes capsulatus* was found in wads of the different makes:

	Wads examined.	B. A. C.	Per cent.
Peters .32 caliber	54	32	[illegible]
Peters .22 caliber	50	21	[illegible]
U. M. C. .32 caliber	49	7	[illegible]
U. M. C. .22 caliber	50	0	[illegible]
Winchester .22 caliber	47	6	12.7
	250		

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* Read before the Association of American Pathologists and Bacteriologists, New York City, 1904.

(*B*) *Powder.*—Cultures from the powder of 101 cartridges were usually sterile. Neither *B. tetani* nor *B. aerogenes capsulatus* was isolated.

INOCULATION OF ANIMALS.

At the suggestion of Prof. William H. Welch, the rat was used as being probably the animal most susceptible to tetanus.

To give *B. tetani*, if present, the most favorable environment possible, use was made of two procedures, the second one of which has not been employed in similar investigations. The first is inoculation of fresh hematoma, which increases greatly the chances of growth of *B. tetani*. As to the second one, Vaillard and Rouget established that "tetanus spores when free from toxin are innocuous when not accompanied by another bacterium, unless protected from phagocytes." Twelve white rats were inoculated under strict aseptic precautions with wads from the Peters Co. 32 caliber cartridges. In addition, a loop of a pure aërobic culture was added, in six an attenuated *Staphylococcus pyogenes aureus* and in the remaining six *B. coli communis*. The skin was then closed by a stitch and covered with celloidin.

Nine of these rats died in convulsions, the tenth quietly, while the other two survived. The incubation period varied from sixty to seventy hours. The character of the convulsions differed from that usually described for animals. The first symptom was a marked spastic condition of the inoculated leg, which was held in extreme flexion, explainable by the laceration of the extensor muscles. Gradually this spastic state extended to the whole body, so that the animal would retain its distorted shape in any position. In all, there was emprosthotonos, in two associated with pleurothotonos. The forelegs were held closely against the abdomen and the non-inoculated leg in extension. At short, irregular intervals there were definite convulsions, the most typical of which started with several rapid nods of the head, followed in order by clonic spasms of forelegs and hindlegs, passing in a few seconds into a tonic spasm of the whole body. In several, clonic spasms alone appeared. The convulsions lasted from one and a half to three hours, the animals all dying at the end of a spasm. At autopsy no lesions of internal organs were found. Smears from the meninges were negative for leucocytes and bacteria. Bearing in mind previous failures to cultivate *B. tetani* from wounds, it was thought wiser to subinoculate from these animals. Accordingly, the wads, with some necrotic tissue, were removed from six of the rats and inoculated into three guinea-pigs and three rabbits. The guinea-pigs died during the night, but the rabbits developed tetanus in about thirty hours. The character of the convulsions corresponded to the description in text-books.

In smears from the rats and guinea-pigs, a few spore-bearing bacilli morphologically resembling *B. tetani* appeared. These were somewhat more numerous from the rabbits. From one rat, only one such bacillus was seen after an hour's search. In all smears bacilli morphologically identical with *B. aerogenes capsulatus* were recognizable, together with numerous other organisms. Cultures were made from the wounds and wads on glucose bouillon and glucose agar, as well as blood serum. There was marked gas production, but repeated search failed to disclose *B. tetani*. Numerous subcultures, made both with and without Kitasato's method, were likewise negative. *B. aerogenes capsulatus* grew so rapidly and vigorously that it apparently crowded out *B. tetani*. Many anaërobic plates were also unsuccessful as regards *B. tetani*. In explanation of these failures, it may be said that the tetanus-like bacilli were extremely scanty, while *B. aerogenes capsulatus* was relatively abundant; and, further, that several other bacilli were present in the Peters wad, which resisted heating as well, one of these forming colonies much resembling those of *B. tetani*.

However, of five rabbits inoculated with five or six loops of the original cultures, three died in convulsions. Smears and cultures from their wounds were also entirely negative for *B. tetani*, though made as soon as symptoms of tetanus appeared.

The experiment was next tried of adding several crystals of urea to the material inoculated for its antichemotactic effect. In this rabbit the exudate was poor in leucocytes, and tetanus-like bacilli more numerous than in previous experiments, but *B. aerogenes capsulatus* had also increased proportionately and several series of plates were again negative for *B. tetani*.

A second series of inoculations with the Peters wads was next made. Three rats and three guinea-pigs were each inoculated with two wads, together with *Staphylococcus pyogenes mucus*, and several small crystals of urea. One rat and two pigs developed tetanus. As in the previous experiment, tetanus-like bacilli appeared in greater numbers than in the first series, but have not yet been isolated.

Inoculation experiments were also tried with the other brands of cartridges. In the case of the Union Metallic cartridges, the wads from the seven original bouillon cultures which yielded *B. aerogenes capsulatus* were used. One rat died without tetanic symptoms, the others survived. Likewise, thirteen wads of the Winchester cartridges, distributed among three rats and three guinea-pigs, produced no symptoms, and the animals survived the local suppuration produced by the staphylococcus.

Previous work has been done on this subject by Le Garde, Taylor, Wells, and the Boston Health Department, a total of 759 cartridges having been examined, both by cultures and animal inoculations, all with negative results for *B. tetani*. The only report of the finding of *B. tetani* in cartridges is made by R. N. Connolly, bacteriologist to the board of health of Newark, N. J. He bases his diagnosis, apparently, on the morphology and odor of cultures, and no inoculation of animals is reported. With regard to *B. aerogenes capsulatus*, Wells alone describes an obligate anaërobe which corresponds closely to this organism, but says it seemed to have motility, and it is not identified.

My thanks are due to Dr. W. T. Howard, Jr., and to Dr. Roger G. Perkins, for their valuable suggestions.

CONCLUSIONS.

1. *B. aerogenes capsulatus* (Welch) was present in a large proportion of the wads of the three makes of cartridges examined.

2. The wads of the Peters Company, inoculated in rats, guinea-pigs and rabbits, produced characteristic symptoms of tetanus.

3. The powder of the three varieties of cartridges examined was negative for *B. tetani* and *B. aerogenes capsulatus*.

4. My efforts at isolation of *B. tetani* from the wads have so far been unsuccessful.

5. There is abundant evidence, from clinical observations and animal experiments, that the wads of certain blank cartridges contain *B. tetani*. Dr. Welch told me that he considered it diagnostic to see an animal in convulsions.

THE PRESENT STATUS OF SURGICAL INTERVENTION IN RETRODEVIATIONS OF THE UTERUS.*

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The business world has learned the value of frequent inventories of the stock on hand with a view to discarding the old-fashioned and shop-worn articles to make room for the new and up-to-date goods. It would be well if we of the professional world would follow their example, and take more frequent and accurate inventories of our work and be equally ready and anxious to discard methods which have proved useless and harmful.

The time has certainly come for the gynecologic surgeon to take a retrospective view of his work and ask himself honestly and seriously what operations have proven successful and beneficial to women as a whole, and what methods need revising or relegating entirely to the museum of surgical antiquities. No region of the anatomy offers so alluring a field for experimental surgery as the female pelvis, the practical immunity of the pelvic peritoneum from fatal peritonitis making it possible to do a great variety of operations in this region with a low mortality.

The ease with which the round ligaments can be reached by three different routes has given rise to so great a variety of methods of shortening this little cord that even an enumeration of them would be tiresome.

The different operative procedures which rescue the uterus from its safe retreat in the pelvis and suspend or fix it in an unnatural and dangerous position in the abdomen are also numerous. These various methods have naturally led to much operating in this direction, as each operator is bound to prove the advantage of his particular method, which can only be done by a dazzling array of statistics.

With the decline of oöphorectomy as a routine operation in pelvic disturbances it was but natural that some other procedure should take its place, and this time the surgical craze lighted on the uterus, and demanded that it be "hung up" by some one of at least fifty different methods. Several years of active operating in this field have now passed, and the testimony is beginning to come in. The examination and analysis of these reports is the object of this paper.

The following pertinent questions suggest themselves: 1. Are these operations necessary? 2. Are they safe surgical procedures? 3. Have they proven successful in a sufficiently large percentage of cases to warrant their continuance?

The answer to the first question depends largely on a second. What is the normal position of the uterus? Schultze[1] threw the first real light on this subject when he announced that a normal uterus must be mobile. Theilhaber,[2] Winters,[3] Winternitz[4] and many others have followed up his work and established the fact that uncomplicated retrodeviations of the uterus produce no symptoms, and, therefore, need no treatment, surgical or otherwise. Theilhaber distinctly says that by far the greater number of cases of retrodeviations produce no symptoms, and that gynecologists have mistaken the symptoms produced by the complications for the deviation in position. He lodges a severe indictment against the modern gynecologists, saying that many do not understand the new teaching of the clinical significance of retroflexion, and, moreover, many do not wish to know; *"viele nicht kennen und manche auch nicht kennen wollen."* He states that Schultze, Winckel, Landau, Freudenberg, Winters, Krönig and Fenwanger have made similar experiments, and that all have come to the same conclusion as himself, namely, that the majority of retroflexions cause no symptoms.

Winternitz says that retrodeviations are not the cause of the symptoms, and we have, therefore, to consider only the complications, and backs up this statement with the following statistics: In 710 apparently healthy women, 154 had retroflexed uteri; of these 154, 90 (60 per cent.) complained absolutely of no gynecologic symptoms. A closer examination of symptoms in the remaining 40 per cent. revealed the fact that in nearly all cases the symptoms were due to co-existing complications. He says that retrodeviation does not create congestions, and concludes: "To operate on a healthy woman because she has retroflexion is absolutely uncalled for."

In 396 cases, 39 per cent., out of 1,000, taken from the records of my clinic at the Mary Thompson Hospital, the uterus was found in retroposition, 62, 15 per cent. of these cases presented no gynecologic symptoms and were referred to the medical clinic. Without exception, *the remaining 334 cases presenting symptoms* were recorded as complicated with definite pelvic or abdominal pathologic conditions. These were classified as follows: Myomata, 24, 8 per cent.; ovarian tumor, 17, 6 per cent.; acute pyosalpinx, 8, 3 per cent.; chronic disease of ovaries and oviducts, 116, 35 per cent. In a large percentage of these cases pelvic exudates and extensive adhesions were found. Myometritis, 104, 30 per cent., one-third of this number being complicated with pathologic laceration of the cervix and consequent cellulitis; 8, 3 per cent., were pregnant at time of examination, and there were 6 cases, 2 per cent., of carcinoma uteri. In the remaining 55, 17 per cent., there were other complications, as appendicitis, hernia, nephroptosia, hemorrhoids and recent puerperal cases. There were among the entire number twenty-three extensive lacerations of the perineum, but as these were in every instance in complication with one or more of the conditions mentioned, I have not made separate account of them. These records were made without any reference to the subject under discussion, and many cases presenting no gynecologic symptoms were referred to other clinics without a pelvic examination. Therefore, the cases of retrodeviation presenting no pelvic symptoms, 15 per cent. may be said to have been discovered by accident. I am indebted to my associate on the staff of the Mary Thompson Hospital, Dr. Alice Conklin, for assistance in compiling these statistics.

Olshausen says that uterine catarrh does not come as a result of flexion. He says that it is only a coincident complication. Emil Reis,[5] in a discussion of the subject before the gynecologic society of our city, says that he does not consider retroversion in itself an indication for operation, and that in cases of retroversion complaining of pain he looks for the cause elsewhere.

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* Read before the Chicago Medical Society, 1904.

[1] Schultze: Displacements of the Uterus. p. 26.

[2] Theilhaber: München. med. Woch., 1902. vol. xlix, p. 1264.

[3] Winters: Wiener klin. Therap. Woch., 1904, No. 1.

[4] Winternitz: Therap. Monatsh., Berlin, 1903, vol. xvii.

[5] Emil Reis: Amer. Jour. of Obst., April, 1904.

If we accept Schultze's definition of the normal position of the uterus, that of perfect mobility, it would effectually do away with a large number of the operations under consideration, as it certainly could not be claimed that a uterus is in a more normal position fixed in the abdomen than if left a fixed organ in the pelvis, especially as the uterus is essentially a pelvic organ and leaves this region only to perform a physiologic function, to which it again retires unless prevented by some pathologic condition or by the ruthless hand of the surgeon.

The fixation of any viscus compromises its circulatory apparatus, both blood and lymph, interferes with its peristalsis, traumatizes its nerve supply, and with how much more force would this apply to a viscus removed entirely from the anatomic region assigned to it by Nature and forcibly detained permanently in a region remote from its anatomic and physiologic home. The conclusions of Thielhaber and others that uncomplicated retrodeviations are not subjects for surgical intervention rules out, without further discussion, Alexander's and all similar operations, as these can only be performed in uncomplicated cases, and, therefore, in those cases only needing no surgical interference whatever.

We may conclude, therefore: 1. That the normal position of the uterus is one of perfect mobility, and that a non-metritic, freely movable uterus may lie in any position in the pelvis without producing symptoms.

2. That when retrodeviation of the uterus is found in any given case of pelvic disturbance, further investigation will reveal complications which have produced symptoms.

3. It is, therefore, the complications which should be subjected to treatment and not the retrodeviation.

Our first question is, therefore, answered. Surgical procedures for the correction of retrodeviations of the uterus are unnecessary.

In regard to the second question: Are they safe surgical procedures? The testimony against these operations I have found so extensive that it will be impossible to give more than a brief summary. As surgical procedures they are all open to the same criticism; the gravity of the operation is out of all proportion to the results obtained. No surgeon can deny that in opening the abdomen there is always a possibility of infecting the peritoneal cavity no matter how rigid the asepsis or how skillful the operator, leaving behind if not fatal sepsis, pelvic exudates which can not fail to leave the patient worse off than when she came into the hands of the surgeon. The Alexander operation, which is, no doubt, of all this class of operations most extensively performed, practically weakens the abdominal wall at its already weakest points and leaves the patient in constant danger of hernia.

Milander[6] collected 54 cases of pregnancy and labor after ventrofixation; 11 of these cases, or 20 per cent., required severe operative delivery. Of Noble's[7] 76 collected cases, 30 per cent. experienced unusually severe labors. W. A. N. Dorland[8] collected 179 cases, in which 111, or nearly two-thirds of the whole number, experienced some uncommon abnormality in gestation or labor, or in both. In 38 per cent. of these cases disturbances occurred as complications of labor. Four cesarean sections and two Porro operations, which ended fatally, were performed on these cases, and in the remaining, other severe and uncommon operative aid was required. Bidone[9] publishes reports of four cases, out of six pregnancies following ventrofixation, of severe complications as the result of the fixation, and goes so far as to advise an abdominal section for the removal of the fixation two months before term in every case. Gradenwitz[10] cites six cases of complications. In two he re-operated some months after the first operation to relieve fixation. In two he operated for enormous hernias. The other two had very difficult labors, requiring instrumental deliveries.

Guerard of Dusseldorf says that fixation of the uterus is an unnatural procedure, and cites several cases where the fixation was excised before the patient recovered from the unpleasant nervous symptoms. Kreutzmann[11] reports that he made a careful study of the results of these operations during two years, and has come to the conclusion that ventrofixation is unphysiologic, unnatural and dangerous. Montgomery[12] has opened the abdomen during pregnancy to cut the band produced by a fixation before the uterus could develop normally. Dr. Edward Ricketts[13] of Cincinnati says: "After ventral suspension the woman takes her life into her own hands, and if she ever becomes pregnant she ought to agree to surgical intervention."

In a recent paper, Frank W. Lynch[14] of Baltimore collected a large number of cases of serious distocia following ventrofixation and suspension, among them 21 cases of cesarean section and ten ruptures of the uterus. A. Palmer Dudley[15] of New York says: Ventrofixation is a pernicious thing, and should never be done, from the obstetrical standpoint. Byron Robinson[16] reports a case seen in consultation with W. E. Holland, of labor at term following ventrofixation performed three years previously. The patient died of shock three hours following the delivery, and postmortem revealed invagination of uterus due to atrophy of the fundus caused by tension of the fixation bands on the fundus.

Reports of cases of ileus following these operations are just beginning to appear, and it is safe to say that there are others which have not found their way into print. Olshausen,[17] Rheul,[18] Jacobs,[19] and A. L Smith[20] each report one case. Rufus B. Hall[21] said he had to deal with three cases, and thinks the operation of ventrosuspension has had its day. Montgomery cites a case where a large portion of the intestine slipped below the band of adhesion immediately following the operation, causing strangulation and death. Similar cases, he says, have been reported by Lindfors, Jacobi, Olshausen and others. Fihling's[22] statistics show a mortality of 5 per cent. after all these operations, and that ventral hernia has followed them more frequently than all other operative procedures.

The operation which ranks next to ventrosuspension and fixation in point of dangerous results is undoubtedly vaginal fixation. The fact that both Mackenrodt[23] and Dührssen[24] have abandoned their methods of vaginal fixation on account of disastrous distocia following, ought to be sufficient to condemn this class of operative procedures; however, there are not lacking statistics. Edebohls[25] says that there were 25 per cent. of abortions in Dührssen's cases and 27 per cent. in his own, and that vesical pain and disturbances of micturition follow in a large per cent. of cases. Strassman[26] reports a case of transverse position, prolapse of funis, difficult version, postpartum hemorrhage; rupture at site of cicatrix and death from intraperitoneal hemorrhage; also one case of impossisible delivery *per vaginam,* necessitating a Porro operation. Graefe[27] reports a case of transverse presentation; the cervix was above the pelvic brim and directed upward; cesarean section was necessary. Wertheim[28] reports a difficult and dangerous version made necessary by the same condition. Ruehl[29] reports 235 vaginal fixations performed by himself, with twelve subsequent pregnancies. In three version was necessary; in two bloody incision of cicatrix; in one craniotomy in addition, the second child also being lost. Leo von Lingen[30] goes very thoroughly over the subject of vaginal fixation, and says the operation does not evidently appeal to Russian surgeons, as he has failed to find a single case reported by them. He cites the cases I have already given, and, in addition, cases of disaster reported by Veldi, Donhoff, Urban, Kallmorgan, Dielrich, Fuchs, Pape and Rieck. Among these cases were ten cesarean sections, six resulting fatally, and numerous abortions.

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[6] Milander: Ztschr. f. Gyn. u. Geb., vol. xxxiii, No. 3.

[7] Noble: Jour. Amer. Gyn. and Obst., February, 1896.

[8] W. A. N. Dorland: Amer. Jour. of Obst., January, 1897.

[9] Bidone: Atti della soc. Ital. di ost egin. 1897.

[10] Gradenwitz: Centralbl. f. Gyn., Leipsic, 1903, vol. xxvii.

[11] Kreutzmann: Centralbl. f. Gyn., Leipsic, 1903, vol. xxvi.

[12] Montgomery: Practical Gynecology, p. 494.

[13] Ricketts: THE JOURNAL A. M. A., 1903, vol. xli, No. 20.

[14] Lynch: Amer. Jour. of Obst. and Gyn., April, 1904.

[15] Dudley: THE JOURNAL A. M. A., 1903, vol. xli, No. 20.

[16] Robinson: American Medicine, 1903.

[17] Ohlshausen: Zeitschr. f. Geb. u. Gyn., vol. xxxvi, No. 1.

[18] Ruehl: Samml. klin. Vortrage, N. F. Nos. 185 and 186.

[19] Jacobs: Zeitschr. f. Geb. u. Gyn. vol. xxx, p. 550.

[20] A. L. Smith: Amer. Jour. Gyn. and Obst., September, 1897.

[21] R. B. Hall: Amer. Jour. Obst., 1896, vol. xxxvi.

[22] Fihling: Deutsch. med. Woch., 1896, p. 773.

The various methods of shortening the round ligaments can not be classed as dangerous operations. The worst that can be said of them is that they are unnecessary, and have proven failures in a large percentage of cases. They will, therefore, be considered under my third and last question: Have these various operative procedures been successful in a sufficiently large percentage of cases to warrant their continuance?

It would seem hardly necessary to discuss the operations of ventrofixation and suspension from this point of view after the overwhelming testimony condemning them from the obstetrical standpoint. However, statistics are not wanting to prove that not only disasters follow in the train of these procedures, but a small percentage of anatomic failures. The greatest objection indeed, which can be raised against them, is that in a large percentage of cases they are a success orthopedically, as the Germans express it.

The percentage of disasters would be less if the percentage of failures in technic was greater. I have, however, performed five vaginal hysterectomies in cases where a ventrosuspension had been performed, and in only one case was the operation complicated by the previous operation. In one case of double pyosalpinx with dense pelvic adhesions, the fundus of the uterus was so firmly adhered to the abdominal wall that I was obliged to free the uterus through the abdomen before finishing the operation *per vaginam.* In the remaining four, the suspensory bands had elongated and thinned, and were only discovered when the fundus was reached in the course of the operation. In one case the band measured five inches. Edebohls[31] found the cervix protruding from the vulva, in one case where he removed the uterus, while the suspensory ligament was still firmly attached to the fundus.

Knorre[32] gives the following interesting statistics: In 4 only, of 24 cases of vaginal fixation, were the orthopedic and functional results good. In 5 the orthopedic results were good, the functional bad. In 4 cases the uterus was retroverted as before the operation, but the patients reported all the symptoms improved. In 11 of the 24 the operation had failed utterly to correct the retrodeviation, and symptomatically the patients remained the same. An interesting report comes from C. W. Oviatt[33] of Oshkosh. He says he has done Noble's operation for retroversion 23 times. In 20 of these there were complications, such as recurring appendicitis and pelvic tumors and diseased appendages, all of which complications were attended to at the time of fixing the uterus. He states that in three uncomplicated cases of retroversion there has been no improvement in the dysmenorrhea, and little or none in the general conditions.

A most significant report comes from the St. Petersburg clinics. T. Dolbert[34] gives the results in 79 cases where ventrofixation was performed, and concludes with the statement that the fine objective results were not paralleled by the subjective, as these returned in more than a third of all the cases, indicating that the neurosis apparently attributable to the displacements is in reality more or less independent of it. Richard C. Wadsworth[35] reports 22 cases of ventral fixation performed at the Massachusetts General Hospital. Only 23 per cent. of these received symptomatic relief. Theilhaber[36] has examined a large number of cases of hysteropexy, and found that the operation does not diminish leucorrhea or hemorrhage.

The many later and newer methods of shortening the round ligament, many of them necessitating the opening of the abdominal cavity, are the severest criticism which can be made on the Alexander operation. Certainly, with the exception of the danger of subsequent hernia. the Alexander offers the least objections of all the numerous methods, and unless it has been found lamentably wanting, there would be no excuse for the innumerable and more objectionable methods. Kleinwächter[37] says that the Alexander operation is illusive, the retroversion recurs, and that the per cent. of hernia following is too large to warrant the operation. I have examined six cases where the uterus was found in retroposition. In one case there was a double hernia. This operation was performed by one of the most skillful operators of our city, and the result can not be blamed to faulty technic.

A great point is made by the advocates of the round ligament operations that no disasters follow in subsequent pregnancies. There is no reason why pregnancy and labor should not proceed normally in these cases, especially in those where the operation has failed to change the conditions in the pelvis. Andersch[38] reports 37 cases of vaginal shortening of the round ligament with anterior and posterior colporrhaphy. Of these, 29 were examined subsequently after two or three years. He found good results in 15, and recurrences in 14. Halban[39] reports a large number of round ligament shortening by different methods, and says that there were more anatomic cures than cases where subjective symptoms were relieved, as the latter were not due to the retroposition.

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[23] Mackenrodt: Monatschr. f. Geb. u. Gyn., 1895, vol. ii, p. 35.
[24] Dührssen: Ges. f. Geb. u. Gyn. zu Berlin, Oct. 25, 1895.
[25] Edebohls: Sec. Obst. and Gyn. N. Y. Acad. Med., Feb. 27, 1896.
[26] Strassman: Ges. f. Geb. u. Gyn. zu Berlin, Oct. 25, 1895.
[27] Graefe: Monatschr. f. Geb. u. Gyn., vol. ii, No. 6.
[28] Wertheim: Centralbl. f. Gyn., 1896, No. 2.
[29] Ruehl: Centralbl. f. Gyn., 1896, No. 5.
[30] v. Lingen: St. Petersburg. med. Woch., 1902, n. F. xix.
[31] Edebohls: Sec. *Obst. and* Gyn. N. Y. Acad. Med., Feb 27, 1896.
[32] Knorre: Centralbl. f. Gyn., No. 51.
[33] Oviatt: THE JOURNAL A. M. A., 1904, vol. xlii, No. 16.
[34] T. Dolbert: St. Petersburg. med. Woch., vol. xxviii, No. 20, p. 190.
[35] Wadsworth: Harvard Med. School Bulletin, No. 11, March, 1904.
[36] Theilhaber: Centralbl. f. Gyn., 1902, vol. xxvi.
[37] Kleinwachter: Wein. Med. Presse, 1902, vol. xliii.

From the statistics cited and the testimony presented by the numerous witnesses quoted in my paper, as well as from the results of my own clinical observations, I feel warranted in answering the questions asked in the negative. Surgical procedures in retrodeviations of the uterus are unnecessary. They are unsafe, and have not proven successful in a sufficiently large percentage of cases to warrant their continuance.

BLOODLESS PERINEAL PROSTATECTOMY UNDER LOCAL ANESTHESIA.

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The problem of prostatic hypertrophy, even with the many resources recently introduced and developed, still offers in certain cases many difficulties in its solution. Patients are practically always of advanced age, weakened through pain and loss of sleep for months, and are very unfavorable subjects for any anesthetic or any form of treatment. Catheterization is often difficult and even when easy it is almost impossible to teach the average patient the details of aseptic catheter technic, and to impress him with the importance of its careful observance. Comparatively few patients survive catheter life for many years, and the development of more or less severe cystitis, with its dangers and discomforts, is the rule. Even if the patient gets on with the catheter with comparative comfort, it is not difficult to understand how irksome it must be to depend on the catheter constantly. The Bottini operation has not been without a high death rate, even in the hands of the most experienced and successful of its advocates; it is sometimes followed by incontinence of urine and not unfrequently fails to give relief. Even if its disadvantages were less, the idea of burning a channel through the tissues blindly, with all the possibilities of infiltration of urine, does not appeal to one as a very desirable surgical procedure.

Prostatectomy, when carefully performed, is generally recognized to be the ideal procedure; it gives perfect and permanent relief, and a condition nearer the normal than can be attained in any other way. The dangers of the operation are from the general anesthesia in old and weakened patients and the loss of blood. Before the operation was perfected, as it has been recently, the loss of blood was undoubtedly a factor greatly to be dreaded, but through the introduction of various forms of prostatic tractors it has been possible to greatly reduce the depth of the perineal wound and to make the control of hemorrhage much easier. Of these various forms of tractors devised by Syms, Murphy, Ferguson, Bryson and Young, it has seemed to me that Young's instrument has some advantages. But even with the almost perfect control of hemorrhage the administration of general anesthesia to these greatly weakened, old men is a dangerous matter, and for some months I have been considering the possibility of performing prostatectomy under local anesthesia and devising the means for this purpose. In the weakened and most run-down of my patients I have employed permanent suprapubic drainage of the bladder to save the life of men too much weakened to undergo the more serious operation. This operation can be done in a very few minutes under eucain, and, I believe, is the safest of all procedures. But for men not in absolutely desperate condition I believe that prostatectomy under local anesthesia is an operation which can be performed, as a rule, quite as safely as the Bottini operation and with only the slightest risk as compared with the operation under general anesthesia. Spinal anesthesia has been used by some surgeons in these cases, but even its most enthusiastic advocates are forced to admit that the death rate, reported from many sources, shows it to be unsafe in the hands of the average man. No series of a thousand cases or over without one or more deaths has been reported, while many careful men have lost larger numbers out of a hundred or less spinal anesthesias. General anesthetics, even when carelessly used by untrained men, have not given such a mortality, and this has led nearly all those who adopted spinal anesthesia a few years ago to abandon its routine use. On the other hand, I am not aware that a single death has ever been reported from among the many thousands of cases in which the infiltration of weak solutions of anesthetic drugs has been used. As a local anesthetic, I have been using recently a solution of beta eucain, 1 to 500, with an addition of adrenalin chlorid to make 1 to 120,000, or, in cases where large quantities of fluid are used for infiltration, even weaker solutions. The addition of adrenalin chlorid, by constricting the capillary vessels, arrests even the oozing and makes the operation an almost bloodless one. In these cases I believe that the saving of even this small amount of blood may make the difference between life and death for some of our patients. The eucain is estimated to be five times less poisonous than cocain, and in over one hundred major operations in which I have used it I have never seen symptoms of poisoning from the drug. The use of adrenalin has additional advantages besides saving blood; it prevents the absorption of the anesthetic drug and, by rendering the part bloodless, it also greatly prolongs and adds to the efficiency of the anesthesia; it prevents the congestion and pain after the operation, which is sometimes seen with the use of ordinary Schleich's solution and, from its action on the general circulation, Crile has shown it to be one of our best circulatory stimulants.

In the use of local anesthesia a most thorough knowledge of the anatomy of the parts is desirable. Through the kindness of Prof. Abram T. Kerr, I have had the privilege of examining a number of dissections of the region of the perineum and prostate in the Cornell University Medical College anatomic laboratory, and I wish to acknowledge the value of this privilege and the helpful suggestions from Dr. Kerr in working out the steps of the operation.

DISTRIBUTION OF NERVES.

An accurate knowledge of the location of the nerves supplying the skin and deeper structures of the perineum and a thorough anesthetization of these nerves at the start is the key to the whole situation, in performing a painless prostatectomy under local anesthesia. Examination of a dissection of the perineum shows numerous nerve branches ramifying in various directions, and at first sight the nerve supply of the perineum seems very complicated. Following these smaller branches back to their main trunks, we see that it is comparatively simple, for the entire nerve supply of this region comes from two main trunks, the pudic nerve, which is formed chiefly from the third cord of the sacral plexus, but also receives communicating branches from the second and fourth sacral nerves, and the long pudendal nerve, which is a branch of the smaller sciatic nerve. References to these nerves in different text-books and atlases of anatomy show differences of opinion as to exact position, but the latest and most accurate authorities are agreed, in the main, as to the location of the nerves of the perineum. In the dissecting room I have found considerable variation in these nerves. But whether the nerves supplying the different parts of the perineum come from two main trunks or from several branches it will be found practically always the case that these nerves take their origin from the main stem or stems, which lie very close to the base of the tuberosity of the ischium. The depth from the surface varies slightly, but it can be estimated quite accurately, within a limit of half an inch, I believe, and this is not too wide a range of error to interfere with thorough anesthetization of the main nerve trunks. The perineal branches of the pudic nerve are by far the most important of these perineal nerves. Superficial fibers run more or less nearly parallel to the transversus perinei muscle. Other small fibers run obliquely forward to the region of the front of the anus, while anterior fibers run to the region of the base of the scrotum and the bulb. The pudendal nerve supplies only the outer region of the perineum and the region far forward, near the base of the scrotum.

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[38] Andersch: Arch. f. Gyn., Berlin, 1902, vol. lxv, p. 217.

[39] Halban: Mon. f. Geb. u. Gyn., January, 1900.

METHOD OF ANESTHETIZING MAIN TRUNKS OF PERINEAL NERVES.

After the usual antiseptic preparations, the first step of the local anesthesia operation is the infiltration of the main trunks from which these various nerve branches take their origin. Taking the tuberosity of the ischium as a landmark, the needle of the infiltrating syringe is inserted in the skin about one inch in front and internal to the tuberosity. It is not necessary to infiltrate a large area in this region and the weaker solution of eucain, 1 to 500, with adrenalin, 1 to 120,000, is used to infiltrate the skin and outer layers. Injecting small quantities of fluid before the needle as it is pushed forward, the point of the needle is carried downward and outward toward the front of the base of the tuberosity of the ischium. The superficial tissues are thus thoroughly infiltrated and the needle is pushed forward until it comes in contact with the bone. From 30 to 60 minims of a stronger solution, 0.5 per cent. eucain with adrenalin, are then injected at a depth of from one to two inches, varying with the thickness of fat and muscle in the region of the ischiorecta fossa in front of the tuberosity of the ischium. Experimental injection of a fluid containing coloring matter into muscles or fat and loose cellular tissues, such as is found in the ischiorectal fossa, will demonstrate very conclusively to anyone interested enough to try it how wide an area around the point of the needle is affected by the solution. Thirty minims of the 0.5 per cent. solution is soon so diffused through the tissues that it affects an area from 1½ inches to 2 inches in diameter and is almost certain to thoroughly anesthetize the main trunks of the perineal nerves. In order to make absolutely sure that the patient suffers no pain during the division of the tissues, the skin in the medium line of the perineum or in the direction of whatever line of incision may be considered desirable, is thoroughly infiltrated with the weak solution, 1 to 500 eucain with adrenalin 1 to 120,000. The influence of the adrenalin in preventing absorption of the anesthetic drug and the very weak solution used makes it possible to employ large quantities of solution without any poisonous symptoms. Adrenalin solution also effectually prevents oozing from small blood vessels, and, with a little care in controlling the larger blood vessels, the loss of blood can be reduced to the minimum. I doubt if in my first operation over a tablespoonful of blood was lost throughout the entire operation.

TECHNIC OF OPERATION.

After infiltrating the main nerve trunks and injecting a large quantity of the weak solution in the region of the proposed incision, a sound is introduced into the bladder and partially withdrawn so that the tip remains in the prostatic urethra. The time taken to thoroughly irrigate the urethra and insert the sound gives the eucain solution time to take effect. It is desirable not to begin the incision too soon after infiltration, for it should be remembered that it takes the solution from three to five minutes to thoroughly numb the parts. After the introduction of the sound, the operator should change his operating gloves. He is then ready to make the skin incision.[1]

I am sure that the testimony of my patient, a judge in a neighboring state, will be accepted as trustworthy. In speaking of the operation, he has repeatedly expressed wonder and satisfaction that throughout the steps of the operation, from the time that the needle was introduced, he felt absolutely no pain. The operation proceeded without any delay because of sensitiveness of the parts which were being divided. As the deeper tissues were exposed, the infiltration of the weak solution was carried deeper into the wound. In opening the prostatic urethra and inserting the tractor, slight discomfort was complained of, but this was only transient. The firm traction, which is possible with the use of Young's instrument, absolutely controls hemorrhage from the deeper vessels and they are brought so near to the surface they can be readily secured before they are divided. Exposure of the anterior part of the capsule and enucleation along the sides is carried out in an area that can be thoroughly infiltrated. The deeper enucleation, a matter of but a few minutes, has to be performed in a region which can not be reached satisfactorily with the infiltrating solution. This region of the neck of the bladder and the prostate itself, is supplied by the hypogastric plexus of the sympathetic nerves, and the discomfort of enucleation is not great. In many cases I believe it would be possible to complete the entire operation under local anesthesia. In the cases of extremely nervous or sensitive patients it will be found wise to use a little nitrous oxid gas or primary ether anesthesia. This part of the operation need not consume five minutes' time and is a matter of far less importance in these cases than the use of general anesthesia throughout the entire operation. which can not be performed in much less than one-half hour at the best.

ILLUSTRATIVE CASE.

The following is the history of a case in which the local anesthesia method was employed with great satisfaction to the patient and to me. When the patient's condition before the operation is considered, it does not seem too much to say that the use of local anesthesia was the means of saving his life.

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[1] In the further steps of the operation I follow in almost all details the method described by Young in The Journal A. M. A., Oct. 26, 1903.

Patient.—The patient was an extremely emaciated man, who had been suffering from bladder trouble for over ten years.

History.—For the past three years the difficulty in urination has been very great. During a year previous to the operation, the patient had not been able to retain his urine longer than an hour at any time, and, for the most part, he has been up every hour during the night for months past. He had lost over thirty pounds in weight, and was so weak that he was scarcely able to be about. The pain and constant loss of sleep greatly interfered with his digestion. He had scarcely any appetite; his stomach at times was unable to retain even the most simple food. The prostatic enlargement considerably interfered with movements of the bowels.

Examination.—When first seen, his bladder was distended to the level of the umbilicus, and, on catheterization, 1,250 c.c. of urine was withdrawn. Both the soft and metallic catheter passed readily. The urine had a very foul odor; was pale in color; specific gravity, 1,005. Heavy ring of albumin: no sugar. On microscopic examination, it was found to be filled with pus, numerous triple phosphate crystals, a few red blood cells. No casts were seen. On rectal examination, the prostate was felt as a rounded mass, the size of a medium-sized orange; by pressure it almost closed the rectum and was tender on rectal examination.

Preparatory Treatment.—Three days before the operation, a permanent catheter was fastened in the bladder, but the patient found it so disagreeable that it was discontinued. He was impatient with the idea of palliative treatment by drainage, and arrangements were made for operation. During the time before the operation he was catheterized twice daily, and his bladder was irrigated with boric acid solution. Under this treatment, the blood disappeared from his urine and the amount of pus was greatly reduced. The patient slept somewhat better, although, of course, he was obliged to be up nearly every hour during the night. On the morning of the operation, the bladder was irrigated on the operating table and a small amount of solution was left in the bladder.

Operation.—April 14, 1904. Anesthetic, eucain, 1 to 500; adrenalin, 1 to 120,000. The patient was placed in the lithotomy position, and the parts were anesthetized as above described. An incision was made in the median line, exposing the membranous portion of the urethra. The field of operation was rendered practically bloodless by the use of the adrenalin solution. The few vessels from which there was bleeding were secured without difficulty, and a perfectly dry, clean dissection was possible. A sound was passed into the bladder and on this the urethra was opened. The urethra was secured on either side by stay sutures of heavy linen and was held open while Young's prostatic tractor was inserted into the bladder. This was accomplished without any difficulty. Moderate traction was possible after the instrument was in place without causing discomfort, but firm traction caused considerable pain. The dissection was then continued until the capsule of the prostate was opened. The capsule was dissected off by blunt dissection, well down to the side of both the right and left lobes. A little extra fluid was infiltrated along the sides of the capsule. Up to this time the patient did not complain of pain from the operation itself, but said he suffered more discomfort from his cramped position on the table. It was evident, however, that it would be impossible to make firm traction on the prostate so as to bring it well down to complete the enucleation without causing a good deal of pain, hence primary ether was administered by Dr. Sanders. Only a small amount of ether was used, and the patient took it quietly, without change of the lithotomy position. The wound was covered with wet bichlorid towels and all instruments were taken off before the ether was begun, but the patient did not struggle at all, and this was really an unnecessary precaution. Enucleation of the deeper part of the gland was without special difficulty, but Young's lobe forceps were found of service in grasping it and drawing it down into the wound. The right lobe was enucleated first, then the left lobe was attacked, and finally the middle lobe, which was not very greatly enlarged, was also enucleated. The duration of anesthesia for enucleation of the deeper parts of the gland did not exceed ten minutes, and in another operation, with the experience of this one, it would be perfectly possible to remove the gland in five minutes or less of general anesthesia. A glass and a rubber drainage tube were inserted, the glass tube entering the bladder and the rubber tube being carried into the large cavity left between the rectum and the neck of the bladder. The hemorrhage during enucleation was insignificant; it is doubtful if a tablespoonful of blood was lost. The cavity was packed with iodoform gauze strips, and the perineal opening was partially closed with catgut sutures. While on the carriage and after cleaning up the skin, an infusion needle was inserted beneath the pectoral muscle on the right side and 1,150 c.c. of warm normal saline solution were run in. The fluid was quite readily absorbed. On the operating table, the patient had one-thirtieth of strychnin, with a preliminary dose of morphin, gr. 1/6, and after being put to bed, a second hypodermic injection of one-fortieth of strychnin was administered. The pulse was very good, though it showed some shock, and hence a hypodermic of one-thirtieth of digitalin was given after the strychnin. The pulse soon improved, and was better than before beginning the operation. Urine drained freely from the perineal incision after the operation, but, in spite of this, the patient remained in a rather comatose condition well into the evening, and it was feared that uremia was developing. Infusions of salt solution were used freely and were rapidly absorbed. In all, five infusions were given, 1,000 c.c. being used at each time except the first infusion. The patient's condition steadily improved during the day of the fifteenth. Urine drained profusely from the perineal wound, rapidly saturating pads. The patient retained liquid nourishment from the start without difficulty: no nausea or vomiting at any time. The quantities of nourishment were very rapidly increased and solid food was soon added. In addition to three hearty meals a day, the patient took large quantities of liquid nourishment at intervals between his regular meals. The albumin of not less than two dozen eggs was given him daily. The extra nourishment was given him for over four weeks, and, whereas before the operation the patient had found great difficulty in digesting even simple food, he was soon able to take very hearty meals with great relish and without the slightest trouble from indigestion. The urine drained freely from the wound and with the complete relief from pain, the patient showed very rapid improvement.

Result.—Six weeks after operation he was in excellent general condition, still taking large quantities of nourishment, gaining rapidly in weight and strength, and passing urine through the urethra.*

At the time of writing, over four months after the operation, the patient is apparently in perfect general health; he walks five miles with ease, has gained over 30 pounds, looks and says he feels like a new man. With the exception of a pin-point opening, from which occasionally a few drops of urine escape, sometimes at intervals of several days, the large perineal wound is perfectly healed.

In this case I believe that the operation under local anesthesia made it possible to save a life. Operation had been considered inadvisable by surgeons of repute in a neighboring large city. The use of large quantities of salt solution subcutaneously to stimulate the action of the kidneys is a matter of great importance, which has been previously emphasized by others. In the further after-treatment, the use of tonics and of large quantities of nourishing food are the main points to be remembered.

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*As this paper goes to press a second patient is recovering from local anesthesia prostatectomy. He also was in extremely bad general condition; unable to void any urine without a catheter, bladder distended above umbilicus when first seen, greatly reduced in flesh and strength. A number of visiting physicians are ready to testify as to the freedom from suffering of the patient under the local anesthesia. Patient doing well five days after operation.

In conclusion, I would say that for the surgeon who does not consider his own time and trouble a matter of greater importance than the life which the patient entrusts to his care, the local anesthesia operation offers a means of greatly reducing the dangers of prostatectomy in critical cases.

Special Article.

IMMUNITY.

CHAPTER III.

GENERAL CONSIDERATIONS.

Definition.

By immunity we understand that phenomenon in which an individual or a whole class of animals exhibits such resistance to an infection as to withstand it, while under the same conditions another individual or another class of animals may yield to it. Immune is from the Latin *immunis,* which meant exempt from a public service, exempt from tribute, or free. Although the word retained this civil meaning for centuries, and still retains it in certain connections, it also had in ancient times a limited application to the protection which an individual might possess against poisons. It is seen, for example, in descriptions of the Psylli, a tribe inhabiting Northern Africa, which possessed a *natural immunity to the bites of poisonous snakes. Although the fact of immunity was known in very ancient times,* the present significance of the term has developed largely from a better understanding of the nature of infectious diseases and of the resistance of the body against them.

Diseases Concerned in Immunity.

As the definition of immunity suggests, we do not think of immunity to such processes as Bright's disease, arteriosclerosis or the metabolic diseases, but only those which we have learned to recognize as infectious.

Immunity to an infectious disease has no necessary relationship to the degree of its contagiousness, although some of the most striking and certainly the most common examples of immunity follow some of the contagious diseases (as scarlet fever and smallpox). Tetanus, on the other hand, which is absolutely non-contagious, can equally give rise to a high degree of immunity.

Acquired Immunity.

No medical fact is more widely known among intelligent people than that an attack of certain of our infectious diseases brings about some kind of change in the patient's tissues which protects him, or renders him immune, against further attacks of the same disease. Inasmuch as he was previously susceptible, the new property is an acquired one, and he is now said to possess *an acquired immunity* against this disease.

Natural Immunity.

It is also well known that many diseases which attack man can not be inoculated into the lower animals, and biologists are familiar with many other examples of immunity which are confined to a species. The lower animals apparently can not be infected with scarlet fever or measles, nor man with chicken cholera. The negro is less susceptible to yellow fever than the white man. The resistance which these examples illustrate has occurred naturally, not through having the disease; it is a natural immunity.

Family Susceptibility and Immunity.

Natural immunity is for the most part an inherited condition; this certainly is the case when a whole class of animals is involved. Similarly, the susceptibility which is peculiar to a species must be hereditary. It is often said of some diseases that they run in families; e. g., carcinoma, gout, insanity. This appears to be just as true of some *infectious* diseases, the most noteworthy example of which is probably tuberculosis. *In contrast to this inherited susceptibility* is an inherited *immunity, which may also run in families.* It is not so easy to adduce examples of this. We are in the habit of thinking of the individual who can resist all infections as representing a standard. He, however, is above the average in resistance, and the average is our proper standard for estimating the resistance of a species or race of animals. It is undoubtedly true that some families possess an unusual resistance to tuberculosis. Furthermore, experimental work with animals has proved that, within limits, an immunity to certain infections (e. g., tetanus) acquired by a female may be transmitted to her offspring. *Even in a given family, however, there are often marked variations in susceptibility and resistance. One child may contract scarlet fever,* while his brother, living under exactly the same conditions, may escape it. There is, moreover, much reason to believe that the same individual varies greatly in his resistance at different times and under different conditions. Hence, the personal equation, as shown by individual immunity or individual susceptibility, is of no small consequence.

The facts mentioned were familiar long before anything was known regarding the principles on which they depend. Subsequent to the discovery of some of these principles (to be considered later), it became convenient and necessary to recognize other special types of immunity, although any type *which can be conceived must still find a place under either natural or acquired immunity.*

Antibacterial and Antitoxic Immunity.

It seems certain that such diseases as typhoid and cholera can occur only when the microbes themselves are present in characteristic localities. Although these diseases are accompanied by pronounced toxic symptoms, the poisonous substances seem to be integrally associated with the bacterial protoplasm and not secreted in a soluble or diffusible form. Observations point to the belief that their toxins are liberated only after the bacteria are killed and dissolved. Hence cholera, typhoid and many other diseases which resemble them in this respect, are in a peculiar sense bacterial diseases. *On* the other hand, the symptoms which are so *characteristic* of tetanus are produced not by contact of the bacteria with *the nervous* system, but through the poison secreted by the *tetanus bacilli* in the wound where they reside. This poison, or *toxin, goes* into solution and is carried from the wound to the nervous system. Therefore, although tetanus is a bacterial disease, it is at the same time and in a peculiar sense a toxic disease. Bacteria which conduct themselves like the organisms of typhoid *and* cholera are said to possess intracellular toxins. *Now experiments* show that the serum of an animal which has an immunity against typhoid or cholera infection is able to kill the respective bacterium, but apparently is not able to *neutralize* the *toxic* substance in the bacterium. Hence, immunity to such diseases is spoken of as antibacterial.

On the *other* hand, the serum of an animal which is immune to *diphtheria* or tetanus, diseases caused by the soluble, extracellular microbic toxins, will neutralize these toxins without having any necessarily injurious action on the bacteria themselves. That is to say, the immunity is antitoxic. Experience has *shown* that this distinction between antibacterial and *antitoxic* immunity is an important one, and the differentiation seems to be a very sharp one. As a good illustration of its *importance,* we may say that no one has ever obtained a successful *antitoxin* for typhoid by the immunization of animals, the *resultant* serum being antibacterial rather than antitoxic. It is *obvious* that natural immunity may be in one case antibacterial and in another antitoxic; and the same is true of acquired *immunity.*

Active Immunity.

Immunity which is acquired as a result of an infection depends on a specific reaction on the part of the tissue cells in response to the chemical injury produced by the bacteria or their toxins. In view of the active part played by the body in establishing this new resistance, the condition is referred to as an active immunity. In the preparation of our various antitoxic and antibacterial sera for commercial purposes, a condition of active immunity is deliberately produced in the animals (the horse, for example,) by the injection of the toxins or of the bacteria.

Passive Immunity.

Contrariwise, the resistance which is established in an individual through the injection of an immune serum (such as diphtheria antitoxin) is a passive immunity, since it depends on the introduction of ready-made immunizing substances rather than on their production through an active process on the part of the one injected. Active and passive immunity, then, are varieties of acquired immunity. Depending on the disease which caused the immunity, or on the character of the serum injected, they may be either antibacterial or antitoxic.

Relative and Absolute Immunity.

Any one of the types mentioned may be either relative or absolute; synonyms are partial and complete. If absolute, infection is impossible. If only relative, different conditions may be made to prevail which would render infection possible: for example, a large number of bacteria will often cause an infection where a smaller number fails to do so. There may also be a temporary decrease in one's resistance through overwork, hunger or exposure. Immunity is usually relative.

Classification of Types.

By proper combinations of the terms which have been enumerated. one may describe somewhat accurately the different forms of immunity. Thus, a child which has received a prophylactic injection of diphtheria antitoxin is in a state of acquired passive antitoxic immunity to diphtheria. If immunity to typhoid has developed as a result of the disease. the condition is that of an acquired active antibacterial immunity, etc. Accordingly, although the terms may be somewhat confusing. it is seen that they are in no sense contradictory.

In tabular form, the different types may be placed as follows:

IMMUNITY.	Natural. The inherited immunity of species and varieties of animals. Inherited family or individual immunity. Acquired. Active. Passive.	Antibacterial or Antitoxic.

In many of these conditions proper biologic experiments will demonstrate the presence of the antibacterial or antitoxic substance in the serum of the animal which possesses the immunity. The technic of such experiments will be illustrated later.

Drug Habituation.

There is another kind of acquired resistance which properly may be mentioned here. It is a well-known fact that one may gradually accustom himself to enormous doses of morphin, arsenic, alcohol and some other drugs. *A priori*, it would seem that this condition of resistance should be analogous to that which is present in antitoxic immunity. But, on the contrary, the serum of a morphin or alcohol habitué has no power of neutralizing the effects of morphin or alcohol. The conditions on which this resistance depends are not understood.

CHAPTER IV.

HISTORY AND DEVELOPMENT.

Early Times and Practices.

The conception of the nature of immunity which was current at one period or another of history had some relationship to the conception of the etiology of diseases at those times. It will be remembered that at one time diseases were supposed to be imposed by an angry deity, and to avert them various mysticisms were resorted to, such as the utterance of incantations and the wearing of talismans. On the other hand, a more logical attempt to explain the natural immunity of the Psylli against snake poison was made by Pliny, who suggested that it might be due to their habit of drinking water from wells in which poisonous snakes dwelt. This is not unlike our present conception of active immunization.

Von Behring quotes literature to show that among some primitive races of to-day, artificial immunization is carried on; a Mozambique tribe is said to inoculate against snake poison by rubbing into a small cutaneous incision a paste which contains venom. Probably non-fatal quantities are introduced in this way, resulting in the formation of venom antitoxin, a method comparable to that used in the production of diphtheria antitoxin.

A type of immunity which we call drug habituation early became known. We learn that Mithridates by taking gradually increasing doses of poisons established in himself resistance of this sort. It is stated also that he fed ducks with poisons and then proposed to use their blood as an antidote (serumtherapy). The importance of antidotes in the minds of the ancients may be appreciated from the fact that epidemic diseases, such as plague, cholera and smallpox, were at one time considered as due to unknown poisons, which might be comparable in nature to some known poisons, as aconite. Mercury for syphilis, quinin for malaria, and salicylic acid for rheumatism would certainly have fallen into the category of antidotes, and mercury may have been so considered.

A historic illustration of the treatment of disease on an etiologic basis is found in a theory which was prevalent in the seventeenth century, according to which diseases were either acid or basic in character, and hence should be treated, the one with an alkali, the other with an acid. Sylvius considered plague to be of acid nature and administered alkalies, while Etmüller took the opposite view.

Manifestly, rational treatment and prophylaxis of the infectious diseases could not be undertaken until their etiology was correctly understood. Yet here, as has so often happened in medicine, empiricism preceded rationalism. For example, protective inoculation did not become a principle until the time of Pasteur, yet it had been practiced against smallpox for centuries, and the method put on its present basis by Jenner long before there was a clear idea as to the *modus operandi* of the protection which resulted.

(*To be continued.*)

Football.—Prof. Burt G. Wilder, of Cornell University, who opposes intercollegiate football games and favors intracollegiate football, said. Some day the national sense of humor will vie with mortification over the record that our universities were once known most widely through the prowess and mishaps of a few score football champions. For the most part those men were intended by Nature and environment for simple and useful lives as students and citizens. They were endowed with the strength and activity that daily moderate exercise would maintain as the most perfect basis for mental work. Yet they were persuaded that the honor of the university called on them to be excused from constant attendance and regular duties as if in the public service; fed at double rates; trained to the verge of "staleness"; portrayed more often than college presidents; wagered on like race horses; bathed and rubbed like cripples; attended by surgeons like duelists; nay, if experts are to be credited, occasionally disabled by methods as unfair and cowardly as those of the savage and the assassin. The university that shall first restrict football to its own members and grounds and abolish gate receipts, may lose some income and a few nominal students; but posterity will award it honor higher than for any other corporate achievement.—*Am. Medicine.*

the red light may soon be given adequate trial on a large scale, so that its real merits may be determined more definitely. Finally, it may be well to emphasize again that it is not now here claimed that red light prevents suppuration even when used as outlined by Finsen, but it is claimed that, so far, in this country, the treatment has not received such trial that we are in position to say that Finsen was wholly deceived as to its value under the restrictions by him outlined. In justice to smallpox patients, new investigations should be instituted.

ANEMIA IN PORTO RICO.

In February, 1904, the legislative assembly of Porto Rico authorized the governor to take steps to encourage the study and cure of "tropical anemia" in Porto Rico. For this commendable purpose $5,000 was appropriated. A commission was appointed, composed of Bailey K. Ashford, captain, assistant suregon, U. S. Army, who really was the first to show that the tropical anemia in this island is due to hookworm; W. W. King, passed assistant surgeon, U. S. Public Health and Marine-Hospital Service; and Dr. P. G. Igaravidez, health officer of Bayamon, Porto Rico. A tent hospital was erected at Bayamon near San Juan in which treatment was begun in March last year and continued until April 30, when no less than 951 cases of anemia had been treated; in 947 the uncinaria was present as practically the sole cause of the anemia. The hospital was now moved to Utuado, and no sooner were the tents pitched than patients began to arrive in large numbers. At times, from 300 to 600 patients presented themselves in one day. By August 15, 4,543 cases of uncinariasis had been treated. In this way the commission gathered the material necessary for study at the same time that the treatment instituted by its success drove out the well-nigh universal skepticism in Porto Rico regarding the curability of the disease. Such, in brief, were the operations of this commission whose report was published Dec. 1, 1904.[1] Certainly the commission merits the highest commendation for its arduous labors and its prompt and valuable service. The value of its work to the people of Porto Rico can not be estimated. Hundreds and thousands of human lives have been made happier and longer as the direct result of an expenditure of $5,000!

The main results of the investigations of the commission which have been anticipated somewhat are that the anemia of Porto Rico, which affects about 90 per cent. of the rural population of the island, and is marked by profound anemia and chronic invalidism, is due to uncinariasis, and that the disease in the great majority of the cases is curable and preventable. In the treatment the essential feature, of course, is the expulsion of the worm. Three drugs merit serious mention: thymol, male fern, betanaphthol. We can not here enter on details of the treatment. Thymol was used with satisfactory results. Betanaphthol, introduced in the treatment of uncinariasis by Bentley,[1] was used toward the end of the work. Except for causing some dizziness, the commission regards this drug, which is only one-tenth the cost of thymol, as an ideal vermifuge in this disease, destined to eclipse thymol and male fern. For the many valuable observations on various features of the disease, such as the mazamorra or uncinarial dermatitis caused most likely by the penetration of the skin by the larvæ in infected soil and water, the diagnosis by examination of the feces, the remarkable eosinophilia, the suggestions in the line of prevention, etc., reference must be made to the full report which will always constitute a landmark in the history of uncinariasis. It is hoped that this report will prove stimulating to the study and cure of anemia in the lower classes in other tropical countries. The day of blind reliance on iron, quinin and tonics in general in the treatment of anemic conditions in tropical countries is past, never to return. Treatment must be directed against the cause and, in the case of uncinariasis, the specific cause is not difficult to find and to remove. Undoubtedly, Porto Rico will continue the humanitarian work, so well commenced, to the end that another preventable disease will be prevented in fact as well as in theory.

THE LYMPHOCYTES IN TUBERCULOUS INFECTIONS.

The relation which exists between certain forms of bacterial infection and the increase in certain varieties of leucocytes in the blood has been known for many years, and has been taken advantage of in diagnosis. We know that septic infection is generally associated with a polynuclear leucocytosis, that in typhoid fever the mononuclear leucocytes are relatively increased, and that infection with intestinal parasites often causes eosinophilia. In recent years, the use of cytodiagnosis has brought out the fact that tuberculous effusions usually show an excess of lymphocytes, and has suggested that the tubercle bacillus elaborates a poison which is positively chemotactic to lymphocytes.

This suggestion is not a new one; in fact, a number of observers have claimed a lymphocytosis following the use of tuberculin. These observations are not numerous, and recently Fauconnet[2] has deemed the subject worthy of more extended investigation. He states that in the early stages of tuberculosis the blood is unchanged, and that his main aim in his experiments was to find out whether a sudden flooding of the body with tuberculous toxins would lead to recognizable changes in the blood. He first took cases in the early stages of tuberculosis and injected them with tuberculin, examining the blood before and after the injection. He found that in all these cases there was an immediate increase in the leucocytes, the average increase being 2,000 leucocytes per cubic millimeter. It was the polynuclears which were increased, however, and not the lymphocytes. After a few days the leucocytes were slightly decreased, but the relative increase in polynuclears persisted. The examination of the blood and also of the exudate, in several cases of serous-membrane tuberculosis with effusion, showed that while the lymphocytes predominated in the effusion their number in the blood was not increased. The experimental injection of healthy guinea-pigs with tuberculin gave less positive results. In all cases there was a leucocytosis, but in some the polynuclears were increased, while in others the lymphocytes were the cells affected. In guinea-pigs, which had been injected for a long time with tuberculin, there was a decided increase in the lymphocytes. Fauconnet does not regard this as a chemotactic phenomenon, though he does not give any adequate reason for this standpoint. The effect of introducing capillary tubes beneath the skin of guinea-pigs after filling the tubes with tuberculin differed according to the strength of the tuberculin. Strong tuberculin led to destruction of leucocytes, but when these were preserved it was always the polynuclears which wandered into the tubes. The same results followed the introduction of tuberculin directly into the peritoneal cavity, the cells found in the exudate were polynuclears.

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[1] Report of the Commission for the Study and Treatment of Anemia in Porto Rico, San Juan, P. R.

[1] Indian Medical Gazette, 1904, vol. xxix, No. 1.
[2] Deutsches Archiv für klin. Medizin, vol. lxxxii, Nos. 1 and 2.

Fauconnet concludes as a result of these experiments and clinical observations that the tubercle bacillus, like most other bacteria, possesses chemotactic power only over the polynuclear leucocytes, so that, as far as the blood is concerned, we can expect no changes which will be of diagnostic value in the early stages. So far as the presence of cells of the lymphocyte type in tubercular effusions and in tubercles themselves is concerned, Fauconnet thinks that their presence is not explained by chemotaxis. In the case of the effusions into serous cavities, he thinks that the close relation of the serous cavities to the lymphatic system may explain the excess of lymphocytes. Fauconnet's work is mainly of negative value, as it shows that little is to be expected from the blood examination in the early stages of tuberculosis; it upholds, however, our present views regarding the character of the cells in tubercular exudates.

TRUTH AND POETRY CONCERNING URIC ACID.

V.

Mares' hypothesis assumed that all uric acid excreted comes from the nucleins of the cells of the body; it denied any direct origin from the nucleins of the food.

The incorrectness of this assumption has since been shown by many researches. Thus it was soon demonstrated that foods rich in nuclein or in xanthin bases exercise a powerful effect on the excretion of uric acid (Horbaczewski, Richter, Weintraud, Lütje). A difference, however, in the action of the nucleins of individual foods is discernible. Umber showed that while the feeding of thymus and liver increases uric-acid excretion, the feeding of brain and kidney, which are almost equally rich in nucleins, does not increase it, at any rate to the same extent; the mode of chemical union in the various nucleinic acids, therefore, Umber thought, can be of great importance. Similar experiments were made by P. Mayer, Jakob and Bergell, Rosenfeld and Orgler, Carlyle Pope and Minkowski. It must be considered as established that nuclein in the food can increase uric-acid excretion.

Despite these researches, the reason for increased uric-acid excretion after the eating of meat still remained obscure, for meat, Kossel showed, contains but little nuclein; further, it had already been proved that there is no direct relation between albumin intake and uric-acid excretion. That meat eating does significantly increase the uric-acid output had been repeatedly demonstrated (Strauss, Smith and Jerome, Zagari and Pace. Sivén). The explanation came with the discovery by Kossel of the existence of an abundance of free xanthin bases in meat, and with the bringing of the proof by Burian and Schur, that of the 0.06 per cent. of purin bodies present in meat, no less than 0.045 per cent. are in a free state. If free xanthin bases can give rise to uric acid, as would seem probable, since the synthetic studies of Emil Fischer have shown their near relations to one another chemically, the increased uric-acid excretion after meat eating is easily accounted for.

And yet, the older experiments, it will be recalled, indicated that the feeding of free xanthin bases alone does not increase uric-acid excretion. It was time that that observation should be subjected again to an experimental test, and this work was undertaken by Minkowski.[1] His studies showed that the feeding of xanthin bases, especially hypoxanthin, leads in man to marked increase of uric-acid excretion. The earlier experiments, which had been negative, had been made chiefly on dogs; Minkowski discovered that in the dog the xanthin bases fed are excreted not as uric acid, but as allantoin; this explains how the idea had arisen that the feeding of xanthin bases does not increase uric-acid excretion. This proof of the possibility in man of a direct transformation of the xanthin bases of the food into uric acid independently of any intermediation of the leucocytes of the body, marks the next important step forward in the progress of knowledge in connection with our subject.

It had by now become perfectly clear that the uric acid excreted can be derived from at least two sources—first from the nucleins of the cells of the body itself, and second, from the nucleins and xanthin bases of the ingested food. From this time on, it became customary to speak of the excretion of "purin bodies" (xanthin bases plus uric acid) in the urine, rather than simply of the excretion of uric acid. Burian and Schur[2] refer to that portion derived from the metabolism of the body cells as "endogenous" urinary purin bodies, and to that portion derived from the nuclein and xanthin bases of the food as "exogenous" urinary purin bodies.

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[1] Minkowski, O.: Ueber den Einflus der Leber-Exstirpation auf den Stoffwechsel, Arch. f. exper. Path. u. Pharmak., vol. xxi, 1886, p. 89; Untersuchung zur Physiologie und Pathologie der Harnsäure bei Säugetieren, ibid., vol. xli, 1898, p. 375.

An interesting attempt was made by Burian and Schur to determine more exactly the actual relative amounts of endogenous and exogenous purin bodies. They believed that by estimating the purin content of the urine of well-fed human beings, whose diet was kept free from purin bodies, that they had determined the amount of endogenous purin bodies excreted. Their findings indicated individual differences for this value. The increase in the amount of purin bodies excreted when nucleins or xanthin bases are fed to the same individual indicates, they thought, the amount of exogenous purin bodies excreted. The latter amount, they believed, is dependent wholly on the quantity and quality of purin bodies fed. They asserted that 50 per cent. of the hypoxanthin ingested as food (either free hypoxanthin or that combined in nuclein) is given out in the form of purin bodies in the urine, while only 25 per cent. of the adenin ingested is excreted as urinary purin.

Extremely valuable as have been the contributions of Burian and Schur to the physiology and pathology of uric-acid excretion, they have, it appears, gone too far in their later assumptions. The matter is not so simple and diagrammatic as their work would lead us to believe. Some of the objections to their views have been well formulated by O. Löwi.[3] He points out that it is really impossible by our present methods to determine accurately how much of the purin bodies excreted is endogenous and how much is exogenous in origin.

In all probability, the endogenous purin bodies can be derived from several different sources. Thus under physiologic conditions it seems probable that in mammals they are derived chiefly from the nuclein metabolism of all the body cells and, principally, of those body cells which undergo most active chemical changes, namely, the cells of the secreting glands and of the muscles. A further possible source of endogenous purin bodies, even in mammals, is by way of direct synthesis. So much attention had thus far been directed to the origin of uric acid by the oxidation of complex compounds that but little consideration had been given to the possibility of its formation in the organism by the union of simpler bodies. We shall turn in our next article to a consideration of the possibility of such a synthetic origin of uric acid.

A NOTABLE ACHIEVEMENT.

A news item in The Journal, Feb. 4, 1905, deserves emphasis. Every reader of The Journal, every member of a local or state board of health, and, indeed, every American citizen should fully appreciate the fact that the Kentucky State Board of Health has succeeded in requiring all the railroads of the state to regularly disinfect all passenger cars. When the proposal first was made, the railroad officials smiled, but after they understood the powers of the State Board of Health they took the matter soberly and ended by agreeing to enforce the regulations regarding car sanitation and sterilization, that were published in detail in a former issue. This reform applies not only to cars used in short runs and in local service, but also to the sleeping, dining, buffet and parlor cars on the through trains which merely traverse Kentucky soil. If persistence and persuasion, supported by some show of authority, can accomplish this in Kentucky, what prevents other states from following this admirable example. Experiment and experience have shown that railroad cars frequently act as carriers of infection. Kentucky has shown how to meet this danger to the health of the community, and other states can not afford to be too far behind.

FIGHTING MEDICAL FRAUDS.

We have published in our news columns, from time to time, accounts of the measures adopted by our German confrères to fight medical frauds. It would be well if we would follow their example, and through our medical organizations institute more active proceedings against all sorts of irregular practitioners. Whether we can get the full co-operation of the public press in the work, as seems to be the case in Munich and in other German cities, may seem at first a little doubtful. But we believe that if the same methods were employed here they would be equally effective. It only requires a certain amount of effort on the part of the medical profession to persuade all respectable newspapers to exclude fake and fraudulent medical advertisements. So far as we know, however, we have nothing in this country exactly corresponding to the "press committees" of the Germans. If our county societies would take the matter up with vigor, a decided impression could be made on public opinion which would necessarily be followed by a great reduction in the ranks of medical pretenders and humbugs. An active committee, keeping the lay press properly instructed in medical matters, and unsparing in its exposures of fraud, wherever found, would work wonders. The public only want the truth and to be convinced that it is the truth, and the success of medical impostors would terminate. Let the medical profession make it clear that it has the real interest of the public at heart and the success of the movement will be certain.

A HANDBOOK ON THE PREVENTION OF CONSUMPTION.

The Committee on the Prevention of Tuberculosis of the New York Charity Organization Society has issued a valuable report entitled "*A Handbook on the Prevention of Tuberculosis.*" It contains, beside the usual review of the year's work and the financial report, a number of valuable papers on the various questions which arise in regard to tuberculosis, including essays on the social and statistical aspects of the subject, on the causes of consumption and on the proper methods of treatment; it includes elaborate plans for sanatoria, lists of institutions in the United States and Canada, and a bibliography of the principal works on tuberculosis. These appendices form the bulk of the volume, and their authors have done excellent work. One of the most interesting chapters is that on the social aspects of tuberculosis by the statistician of the committee. This chapter points out that special perils exist in cities rather than in the country districts, and that certain races and occupations appear to be specially liable. The conclusion is that we must look more and more to the apparently indirect methods of dealing with the disease. The report says: "The problem would soon disappear of itself if it were possible for everybody to breathe fairly pure air, to be clean with a reasonable effort, and to have enough of the right sort of food to eat." It will require a great deal more than is being done to bring this about, but that is the main line on which we will probably make our most effective attack on the disease. One thing is encouraging: statistics show that the mortality from consumption is decreasing, and that this decrease is more marked in just those localities where, at least, an approach to the necessary sanitary reforms is being made.

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[2] Burian, R., and Schur, H.: Ueber die Stellung der Purin körper im menschlichen Stoffwechsel, Pflüger's Archiv, vol. lxxx, 1900, p. 241, and vol. lxxxi, 1901, p. 239.

[3] Löwi, O.: Beiträge zur Kenntniss des Nukleinstoffwechsels, Arch. f. exper. Path. u. Pharmak., vol. xliv, 1901, p. 1, and vol. xlv, 1901, p. 157.

THE PAINS OF TABES.

As is well known, locomotor ataxia, while not of itself a fatal disease, is often attended with symptoms or complications of a most distressing and even serious character. Motor inco-ordination is not always the most conspicuous manifestation, and it may at times be so little marked as to escape cursory observation. Not less common than ataxia, and earlier in appearance, are pains of one kind or another, and which may at times be so severe as to dominate the clinical picture. They are often mistaken for rheumatism or gout or neuritis, but their real origin can usually be determined from a study of the other symptoms present in the individual case. Sir William Gowers,[1] in a recent clinical lecture, took up for consideration the pains of tabes, discussing at some length a condition to which he gives the name of tabetic neuralgia. He makes two divisions of the pains attending tabes, namely, those that are brief, commonly momentary, but succeeding each other at short intervals in the same place, for hours, sometimes for days; and those that are prolonged, lasting for hours or days or even longer in the same place. The first variety may be superficial or deep; those of the second variety are usually deep, although diffuse surface sensations of this character are not uncommon. In some cases of tabes, pain is the only prominent symptom, the knee jerks and co-ordination being preserved. Such cases are thought to constitute a special and uncommon variety of the disease and to be due to a peculiar character of the toxic etiologic factor; and for them the designation tabetic neuralgia is considered appropriate and unobjectionable. Eleven cases of this kind analyzed by Gowers all occurred in adult men, 9 of whom presented a clear specific history, which, further, could not be excluded in the remaining 2. The interval between the primary disease and the onset of the pain varied from seven to nineteen years, the average being twelve years. The knee jerks were normal in degree and equal on the two sides in 8 cases and unequal in 2; while in 1 the reaction disappeared entirely on one side. In 2 cases, the reaction of the pupils to light was absent; in 2 it was enfeebled; in 2 it was completely wanting on one side; and in 1 there was instant contraction followed by dilatation to its former size. One patient presented characteristic atrophy of the optic nerve, with preservation of the knee jerks, of co-ordination and of cutaneous sensibility. In one patient, sensibility to pain was lost on the feet and lower legs and lower parts of the thigh; in 1 it was delayed on the legs and lost on some parts of the trunk; and in 1 it was lessened on the left leg and foot. One patient suffered from gastric crises, and he and one other complained of girdle sensation. The pains were the symptom for which all of the patients sought relief, except the subject of optic nerve atrophy. They had been present in 3 patients for one year, in 1 for two years, in 3 for three years, in 1 for four years, and in 3 for ten years. They had variously been ascribed to gout, rheumatism and neuritis. From a prognostic standpoint the outlook is favorable with respect to the development of ataxia, but the pains, although their severity can often be mitigated, can seldom be altogether arrested. There is, however, no relation between the severity of the pain and the progress or the gravity of the underlying disease. The pains are believed to originate in the extremities of the peripheral nerves. The superficial pains can be relieved temporarily by the local application of chloroform sprinkled on lint and covered by oiled silk. A more prolonged effect is produced by the hypodermic injection of cocain at the upper part of the area in which the pains are felt. The sensibility of the skin to both touch and pain can be abolished by the application of the positive anode of a galvanic battery saturated with a solution of cocain of from 6 to 8 per cent. The deep, as well as the superficial, pains, as a rule, are amenable to treatment, and the coal-tar preparations are recommended. Sometimes morphin may be required, but it should be used with caution. To lessen the tendency to the occurrence of tabetic pains, Gowers has found aluminum chlorid, in doses of 5, 8 or 10 grains thrice daily, a most efficient agent. The salicylates, also, are sometimes useful for this purpose.

Medical News.

ALASKA.

A Summer Resort.—Sitka Hot Springs is soon to be opened as a health and summer resort. Drs. Henry W. Coe, Robert L. Gillespie and Walter T. Williamson of Portland, Ore., are interested in the venture and will spend about $20,000 in buildings.

ARIZONA.

County Physician Indicted.—As a result of its investigations, the grand jury of Cochise County found a true bill for manslaughter against County Physician Marshall D. Johnson, Bisbee, and he is held in bonds of $3,000.

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[1] British Med. Jour., Jan. 7, 1905, p. 1.

Grand Jury Arraigns Officials.—The December grand jury of Cochise County alleges gross irregularities and willful violations of law in the conduct of county institutions; finds the food provided at the county hospital insufficient in quantity and inferior in quality; the bedding filthy; the steward, brutal and abusive, and the county physician neglectful of his duties.

New Officers Elected.—At the annual meeting of the Yavapai County Medical Society, held Dec. 10, 1904, the following officers were elected: President, Dr. John S. Barrett, Prescott; vice-president, Dr. Henry D. Thomason, U. S. Army, Whipple Barracks; secretary-treasurer, Dr. Clarence E. Yount, Prescott, and Drs. John W. Flinn and Samuel V. Fitzsimmons censors.

ARKANSAS.

Medical Building Assured.—The Medical Realty Company has been incorporated at Little Rock, with a capital of $50,000, to erect a three-story building 140x50 feet designed expressly for the use of physicians.

Federal Board Report Approved.—The Secretary of the Interior has approved the report of the Federal Medical Board in which 126 practitioners are placed on the registered list of those entitled to prescribe the waters of Hot Springs.

Would Change Name.—In the biennial report of the Arkansas State Lunatic Asylum, the superintendent, Dr. Harry C. Stinson, Little Rock, recommends that the name of the institution be changed to the Arkansas State Hospital for Nervous Diseases. During 1903 146 patients were admitted, and in 1904 90, a total of 236 new cases.

Smallpox.—A death occurred at Warren, January 28, and several cases among negroes are reported.——The Argenta Board of Health has adopted a resolution requiring the employes of all stores, mills, factories and compresses to exhibit to their respective employers a certificate of vaccination. The police have been instructed to see that this resolution is complied with. There are now 60 cases of the disease in the city, principally among negroes.——Little Rock has at present 15 cases.

CALIFORNIA.

Hospital Notes.—A hospital is to be erected in Los Angeles to cost $35,000, for the exclusive use of Mexicans of the laboring class.——The reconstructed Children's Hospital at Los Angeles was formally reopened January 28.——By the will of the late Winifrede Martin, Los Angeles, nearly $80,000 is devised to charitable institutions, including several hospitals.——The trustees of the Samuel Merrett Hospital Fund, which now amounts to $630,000, have filed a petition asking that they be allowed to build part of the hospital at Oakland, to cost $75,000, as provided in the will of the late Mrs. Catherine M. Garcelon.

Under the Ban.—"Dr." James McLean, Los Angeles, was fined $100, January 3, for practicing without a license.——"Dr." C. A. Richmond, San Francisco, was fined $100, January 17, for practicing without a license.——"Dr." Edward H. Diehl, East Los Angeles, pleaded guilty, January 21, to practicing without license and will be sentenced.——"Dr." Charles Scavazzo, Los Angeles, was found guilty, January 17, of practicing without license and fined $100.——A jury in Sacramento on January 26 disagreed in the case of T. Wah Hing, holder of an alleged Hongkong diploma, who, it was proved, practices medicine and advertises himself as a practitioner.

Personal.—Col. Alfred C. Girard, U. S. Army, has been offered the superintendency of the Children's Hospital, San Francisco, to become effective on his retirement from the service in July, and has accepted the position.——Drs. William J. Walsh and James B. Hannah, inspecting physicians of the San Francisco Board of Health, have resigned.——Dr. Palmerston C. Campbell, Point Richmond, has been appointed lieutenant-colonel on the governor's staff.——Dr. James R. Curnow, San Jose, has been adjudged insane, and was committed to the Agnew State Hospital for the Insane, January 28.——Dr. Pavlo De Vecchi, San Francisco, has been honored by the King of Italy with the title of commendatore of the order of the crown of Italy.

ILLINOIS.

Smallpox.—There are said to be 25 cases of the disease in East Smithfield, Ill.

St. Francis Hospital, Evanston, during 1904, treated 212 cases, 23 of which were of appendicitis.

Guilty of Abortion.—Dr. Wade D. Stevens, Paw Paw, was found guilty of performing a criminal operation and will receive an indeterminate sentence, unless the new trial, which he is attempting to obtain, is granted.

Joint Meeting.—Winnebago County Medical Society and the Central Wisconsin Medical Society held a joint meeting in Rockford, January 31, followed by a banquet, over which Dr. Walter B. Helm presided as toastmaster.

Changes in Sanatorium Bill.—As the result of a conference of Hon. Edward J. Glacking, who introduced a bill for the establishment of a state sanatorium for consumptives, and Dr. James A. Egan, secretary of the State Board of Health, many minor changes will be made in the bill, although its main provisions remain unchanged. The county and district medical societies of the state will be invited to co-operate in the movement and will be asked to interest the representatives from their respective districts in this bill.

Chicago.

Hospital Purchases Site.—Chicago Baptist Hospital has purchased for $37,500 the property it has occupied for many years at Thirty-fourth Street and Rhodes Avenue.

To Enlarge Building.—Passavant Hospital Association has been organized for the purpose of enlarging the building of Passavant Memorial Hospital. A building and lot have been donated, and about $30,000 additional is required for construction purposes.

White Cross First Aid.—The first of the series of public lectures under the auspices of the American White Cross First Aid Society was given by Dr. Nicholas Senn, in the public library building, February 3. Dr. Senn compared the work to be done by this society in time of peace to that of the Red Cross in time of war, and then spoke briefly on the first dressing of gunshot wounds.

January Deaths.—The death rate of January was at the annual rate of 14.70 per 1,000. Deaths from all causes numbered 2,487, 146 more than in the preceding month, and 126 more than for January, 1903. The chief contributing causes were pneumonia, 515; consumption, 272; Bright's disease, 183; violence, 175, and heart diseases, 164. Diphtheria caused 52 deaths; typhoid fever, 29; scarlet fever, 8; and smallpox 7.

Comparative Mortality.—The total of 530 deaths reported during the week, equivalent to an annual mortality of 13.88 per 1,000, are 28 fewer than reported during the previous week and 66 fewer than for the corresponding week of one year ago. Compared with that week, there were 10 more deaths reported from the acute intestinal diseases, 13 more from consumption, 5 more from measles, 6 more from smallpox and 7 more from whooping cough. On the other hand, there were 18 fewer from Bright's disease, 3 from bronchitis, 6 from cancer, 7 from convulsions, 6 from influenza, 12 from heart disease, 46 from pneumonia, 5 from scarlet fever, and 2 fewer from typhoid fever—the 3 deaths from this last-named disease being the fewest for any January week in twenty-three years.

MARYLAND.

Railway Hospital Open.—The Baltimore and Ohio Emergency Hospital at Brunswick has been formally opened.

Honor Grand Master.—The masons of Maryland are about to erect a monument to the late Dr. Charles H. Ohr, Cumberland, past grand master of the order.

Ancient History.—Dr. Bernard Steiner, Baltimore, read a paper on the life of Dr. James McHenry, January 30, before the Frederick County Historical Society. Dr. McHenry was on Washington's staff and was also secretary of war. Fort McHenry was named after him.

Baltimore.

Pneumonia Leads.—The deaths from pneumonia ran up to 31 last week, and only 23 were due to consumption.

Physician Non-suited.—Dr. George A. Strauss, who brought suit for $1,000 against the United Railway and Electric Company for alleged injuries in being thrown from a street car, failed to prove his case.

New University Journal.—There will be issued at the University of Maryland, about the first of March, a monthly medical journal, to be known as the *University Hospital Bulletin*, which will be edited by Dr. Eugene F. Cordell.

Personal.—Dr. W. Lee Howard has returned from Jamaica.——Dr. Hugh H. Young has been on a pleasure trip to Nassau, W. I.——Dr. Champe S. Bradfute, who disappeared from his home here on May 11, 1904, has returned. For five months his mind was a blank, and when he recovered his mind he found himself in Virginia. He expects to resume practice.

MASSACHUSETTS.

Fire at Sanatorium.—The New England Sanatorium at Stoneham was damaged by fire to the extent of $25,000, January 1. The medical staff and nurses succeeded in removing all the patients without casualty.

Bequests.—By the will of the late E. W. Corman, Boston, Harvard University and Massachusetts General Hospital are named as beneficiaries to the extent of more than a million dollars.——Lawrence General Hospital has been bequeathed $1,000 by the late George F. P. Dodge of Chicago.

Hospital Notes.—Brockton Hospital Corporation, at its annual meeting, elected Dr. A. E. Elliott Paine, vice-president. During the year the governor of the state presented to the corporation a fully-equipped surgical building, at an expense of about $25,000. Dr. Nathaniel C. King was added to the executive committee.——At the annual meeting of the staff of St. Vincent Hospital, Worcester, held January 19, Dr. John T. Duggan was re-elected chairman, and Dr. David B. Lovell was elected secretary.

Personal.—Dr. Timothy F. Daly, Lawrence, was given a chest of silverware by the Galen Medical Club, January 2.——Dr. Charles N. Raymond, Rehoboth, was murderously assaulted on January 1 by a Frenchman whom he had befriended.——Dr. Carl H. Eidam, Lawrence, has been appointed a member of the board of health.——Dr. Elliott Washburn has been reappointed chairman of the Taunton Board of Health.——Dr. Clarence B. Livingston has been appointed physician of District No. 1, Lowell.——Dr. Walter A. Smith, Springfield, has been appointed medical director of the First Brigade, M. V. M., with rank of lieutenant colonel.

MINNESOTA.

Hospital Incorporated.—Mennonite Hospital of Mountain Lake has been incorporated with a capital stock of $25,000.

Acquitted of Murder.—Dr. Rudolphe T. Germain, Barnesville, charged with murder in the second degree, was found not guilty, at Moorhead, January 16.

Personal.—Dr. Alexander J. Stone, St. Paul, has been reappointed surgeon general of the Minnesota National Guard.——Dr. George E. Benson, Minneapolis, has gone to Europe for six months.——Dr. Edward Benham, Amboy, has been elected physician for the seventh district of Blue Earth County.

State Aid for Local Laboratories.—The State Board of Health, at its meeting, January 31, passed a resolution to the effect that "when cities of ten thousand population or upward have established a laboratory within the state, which in the opinion of the State Board of Health is an efficient one, it may then be made a branch of the State Board of Health laboratory and receive financial aid from the state. The application for affiliation with the State Board of Health is to be made by the local board of health under the approval of its city council. The amount of state aid to be given such a laboratory is to be determined by the State Board of Health." Under this provision a branch laboratory will probably be established at an early date at Duluth.

MISSOURI.

Physician Imprisoned.—Dr. J. D. Todd, Richards, formerly a member of the legislature, who shot and killed R. T. Wall in May last, was found guilty of murder in the second degree and sentenced to imprisonment for twelve years in the state penitentiary.

School Children To Be Examined.—The 35 physicians recently appointed to examine school children in Kansas City commenced their work January 30. They will examine and report any case of communicable disease, but will not treat the children.

New Medical Practice Act.—The general assembly, now in session, is considering a new medical practice act, the essential feature of which is the provision that applicants for licensure must present a diploma from a reputable college before they will be admitted to examination.

Personal.—Dr. Leonidas H. Laidlaw, resigned as medical director of the Louisiana Purchase Exposition, Dec. 31, 1904.——Dr. Charles W. Chastain, Plattsburg, has been appointed physician to the state penitentiary.——Dr. R. Leon Hill, Boonville, has been made a member of the Cooper County Medical Board of Pension Examiners.——Dr. J. Phillip Knoche, Kansas City, has been granted the right to change the spelling of his name to Kanoky.

MONTANA.

Isolation Hospital Opened.—The new isolation hospital for Billings was opened, January 19, and Dr. C. B. Miller has been appointed superintendent.

Diphtheria Prevails at Slockett.—On account of the prevalence of diphtheria at Slockett, the Cascade County Board of Health has decided to turn the jail into a quarantine station, where all diphtheria patients will be left until danger of infection is removed.

State Board Report.—The biennial report of the State Board of Health shows that smallpox has been greatly reduced. In 1902 there were 764 cases in the state; in 1904, only 122. Diphtheria increased 141 cases, as compared with 1903; scarlet fever decreased from 339 to 179, and there was also a decrease in typhoid fever cases of 42 for the year.

NEBRASKA.

Hospital Acquires Land.—The South Omaha Hospital Association has purchased two lots on which it proposes to erect a brick building to cost $25,000.

Physician Wins Suit.—Dr. Milton H. Everett, Lincoln, was given the decision in the suit brought against him for damages by reason of an operation alleged to have been unsuccessful.

Smallpox in Beatrice.—There are about 24 cases of smallpox in Beatrice, most of which are of a very mild type. The city council has passed an ordinance which provides a heavy fine for individuals violating the smallpox quarantine regulations.

State Capitol Insanitary.—A report has been made to the adjutant general that the Nebraska State Capitol, on which the state has expended $1,500,000, is in an insanitary condition, and is unsafe for the state officials whose duties compel them to remain in the building.

Personal.—Drs. John B. Lichtenwallner, Dunbar, and Will T. Neil, Nebraska City, have been appointed physicians of Otoe County.——Dr. James L. Alden, Pierce, will be superintendent of the new state hospital at Norfolk, when it is completed, and Dr. Frank S. Nicholson, St. Paul, will be assistant superintendent.——Dr. Artie Folsom, Beatrice, is now in London.

NEW YORK.

Fire in Hospital.—St. Mary's Hospital, Jamaica, L. I., narrowly escaped a serious fire. Through the efforts of one of the physicians and two attendants the flames were held in check until assistance arrived.

Influenza Among Life-Savers.—An epidemic of influenza prevails among the members of the Long Island coast life-saving crews. Some of the stations have more than one-half their members incapacitated. Hardships encountered during the recent storms are said to have aggravated the cases.

Medical Society of the State of New York.—This body convened at Albany on January 31, February 1 and 2. The officers for the ensuing year are: President, Dr. Joseph D. Bryant, New York City; vice-president, Dr. Herman R. Ainsworth, Addison; secretary, Dr. Frederick C. Curtis, Albany; treasurer, Dr. Ogilvie D. Ball, Albany.

High Death Rate.—The State Board of Health reports 141,564 deaths in the state during 1904, the largest number ever officially recorded. This is a death rate of 18.2 per thousand, as against an average of 17.2 for the past five years. Consumption caused 14,000 deaths, or about 10 per cent., and there were 8,000 deaths from pneumonia during the first five months of the year.

Tuberculosis Hospital a Success.—The first report of the state hospital for the treatment of incipient tuberculosis, which was established by an act of legislature at Raybrook, in the Adirondacks, was presented to the New York State Medical Society. Although the institution has only been open since July 1, 82 patients have been admitted, 11 have been discharged as cured, 19 have apparently recovered, in 34 the disease has been arrested and the remainder show improvement, with the exception of 5 who have not been there long enough to justify conclusions.

Duffy's Malt Whisky Declared Not Medicine.—The State Excise Department has won its case against a New York City druggist, the principal point involved being whether Duffy's malt whisky was a liquor within the meaning of the liquor tax law, or whether it was a patent or proprietary medicine, not subject to its provisions. At the trial in the lower court, the defense showed testimonials to the medicinal effects of the liquor, but the chemists, C. A. Crampton, chief chemist of the United States International Revenue Department, Joseph Du Guehuee, chief chemist of the Health Department of New York City, and Edward W. Wheeler, chemist for the State Agricultural Department, showed that the whisky contained 45 per cent. alcohol, and that it did not contain any appreciable quantity of any drug or medicine other than alcohol. The lower court gave a verdict for the excise department, declaring the $500 bond of the druggist forfeited for violation of his pledge not to sell liquor except on the prescription of a physician. The Appellate Division of the Supreme Court sustained this finding.

More Bills Before the Legislature.—Taxing Alcohol—A measure, interesting in view of the tragedy attending the adulteration of cheap whisky with wood alcohol in New York City, taxes all sellers one-third of the price of all alcohol sold, compels them to report to the State Department of Health monthly, and imposes a fine of $50 for each violation of the law.——To Change Management of State Institutions—A representative of the State Charities Aid Association has prepared a bill providing for the administration of the state insane asylums as it existed before the Odell régime. This means that local boards of managers are to be re-established for each institution, with full powers of supervision and control, aside from administering the finances of the institutions, which will be taken care of, as now, from Albany.——Optometry Bill—Efforts are being made by an organization of opticians known as the Optical Society of the State of New York to secure the enactment of a law to regulate and define the practice of optometry. With this object in view the optical society distributed to members of the medical profession 8,000 copies of a pamphlet entitled "Facts About the Optometry Bill," as well as copies to the state officials and members of the legislature and to all leading newspapers of the state. Following this it mailed subscription blanks to opticians asking for money contributions to defray the expenses of the campaign. The Medical Society of the State of New York will, through its committee on legislation, institute a vigorous opposition to the efforts of the optical society. The co-operation of the medical profession is solicited and the Opticians' League of the State of New York will join in the opposition, as they believe that the fitting of glasses for the relief of headache, dizziness, diplopia and other symptoms is no part of the work of opticians, but should be restricted to educated and licensed physicians.

New York City.

Gift to Academy of Medicine.—The complete collection of monographs possessed by the late Prof. Gerhardt has been purchased and presented to the library of the Academy of Medicine by Dr. A. Jacobi.

Fireworks Ordinance Shelved.—There has been an indefinite postponement of the hearing on the ordinance prohibiting the use of fireworks in this city. Many other cities have such ordinances and it is a source of regret that this city should neglect a matter which affects life and property to so great an extent.

Coroner Found Guilty.—Dr. Jackson, convicted on the charge of soliciting a bribe of $500 to clear "Dr." John W. Alexander, who was arrested on the charge of having caused the death of a woman by a criminal operation, has been found guilty. There is another indictment against him for having attempted to bribe the deputy assistant district attorney.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended January 30 389 cases of tuberculosis, with 167 deaths; 272 cases of diphtheria, with 40 deaths; 248 cases of scarlet fever, with 13 deaths; 174 cases of measles, with 7 deaths; 174 cases of varicella; 41 cases of typhoid fever, with 14 deaths; 8 cases of smallpox, and 28 deaths from cerebrospinal meningitis.

Order for the Health Board.—In the Supreme Court of Brooklyn an order has been granted directing the Health Board of the City of New York to show cause why a peremptory writ of mandamus should not be issued commanding the appointment of an assistant superintendent for the borough of Brooklyn. The Brooklyn assistant was removed last August, and druggists and others wishing to confer with the health board have been compelled to come to the central office in New York.

Free Meals for School Children.—The statement that there are 70,000 ill-nourished children in the schools of New York, many of whom are in the habit of coming breakfastless to school, led to a conference of the Charities Organization Society, the Society for the Improvement of the Condition of the Poor, the Children's Aid Society, and others, for a discussion of the subject. It was the consensus of opinion that there was no abnormal destitution nor that there were many children who were sent to school without breakfast because of the inability of the parents to provide for them. It was agreed, however, that there were many underfed children, and a committee was appointed to investigate and ascertain the real causes. The Salvation Army has already established several stations where breakfast is served to school children.

Special Courses Continued.—Cornell University Medical College will continue this year the courses instituted last season in lectures on special subjects connected with general medicine and general surgery. Drs. Charles L. Gibson, Ellsworth Eliot, Jr., and E. L. Keyes, Jr., will each give about six lectures on topics connected with general surgery. Drs. L. A. Conner, M. G. Schlapp, C. N. B. Camac and O. H. Schultze will lecture on topics connected with general medicine. Dr. John McGaw Woodbury, the present commissioner of street cleaning, has promised to deliver several lectures on municipal sanitation. These lectures are given to the third and fourth-year students and have been found of great value in the elucidation of subjects in which the lecturers have demonstrated their proficiency. At the same time they are of value to the faculty who are thus able to obtain knowledge of the latest advancement made in the college laboratories.

OKLAHOMA.

Change of Name.—The Protestant Hospital, Oklahoma City, has changed its name and will hereafter be known as the Oklahoma Hospital.

Personal.—Dr. Elmer E. Cowdrick, Enid, resigned as superintendent of the Territorial Board of Health February 1.——Dr. George A. La Motte, Oklahoma City, has been appointed physician of Oklahoma County.

Physicians Need Not Pay Fee.—The Territorial Board of Health and Medical Examining Board to-day lost an important case in the courts wherein is involved the payment of a $30 fee by applicants to practice medicine in Oklahoma. Physicians who have secured such certificates sued for the recovery of their fee and secured judgment. As the law has been in force for some time, the total fees to be returned to applicants aggregated a large sum. The board will appeal.

PENNSYLVANIA.

Named for Medical Board.—The governor has presented the following names to the senate for members of the State Board of Medical Governors, to serve three years: Dr. W. D. Hamaker of Meadville, and Dr. M. P. Dickeson of Glen Riddle, representing the Medical Society of Pennsylvania; Drs. J. C. Guernsey and Edward Cranch of Erie, Pa., representing the Homeopathic Medical Society; Dr. William Rauch of Johnstown, and Dr J. M. Louther of Somerset, representing the Eclectic Medical Society.

To Treat Consumptives.—A bill has been introduced in the legislature for the selection of a site and the erection of a state hospital for the treatment of incipient tuberculosis. The bill provides that the institution be located within the limits of the state forestry reservation in Franklin County. From 500 to 1,000 acres are to be set aside for the use of the institution. A commission of nine persons is created to select the site and to build the hospital. The commission is to be composed of the auditor general, the commissioner of forestry, the president of the senate, the speaker of the house, and three practicing physicians to be appointed by the governor, one senator, and one representative. The bill provides for an appropriation of $200,000. Patients who can pay for treatment will be required to do so by direct application to the board of trustees. Those who can not pay are to be admitted on the recommendation of county commissioners, directors of the poor, or the departments of charities of counties and cities.

Philadelphia.

Personal.—Dr. Alfred Gordon, on January 23, was appointed chief of the clinic of nervous and mental diseases in Jefferson Medical College Hospital.——Dr. Benjamin Horn and Dr. H. R. M. Landis have been appointed demonstrators of medicine in Jefferson Medical College.——Dr. John Kuestner sailed for Jamaica January 26.——Dr. S. Weir Mitchell has been selected to present the candidates for honorary degrees of the University of Pennsylvania on February 22. President Roosevelt will deliver the oration.——Dr. David L. Edsall and Dr. Alfred Stengel addressed the annual meeting of the Medical and Surgical Society of the District of Columbia in Washington, February 2.

GENERAL.

Life Insurance Statistics.—The report of the medical department of the Mutual Life Insurance Company of New York, in its sixty-second annual statement, shows that the total deaths exceeded those of 1903 by 434, the average age at death being 51.96 years. The classification of causes of death is interesting, owing to the presumption that policy holders are more careful of their health than others. This classification shows 510 deaths from organic disease of the heart; 504 from consumption; 477 from pneumonia; 438 from Bright's disease; 387 from apoplexy, and 112 from old age.

Nathan Lewis Hatfield Prize.—Five hundred dollars will be awarded by the College of Physicians of Philadelphia to the author of the best essay submitted on or before March 1, 1906, on "The Clinical and Pathologic Diagnosis of Sarcoma." Essays must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device, and containing the name and address of the author. They must embody original observations and researches. The committee reserves the right to make no award if none of the essays submitted is considered worthy of the prize. For further information address Francis R. Packard, M.D., chairman, College of Physicians, 219 South Thirteenth Street, Philadelphia.

FOREIGN.

Mikulicz' Operation.—Von Eiselsberg of Vienna operated in January on Professor Mikulicz on account of an umbilical hernia. Recovery has been uneventful.

Influenza in Berlin.—The Public Health and Marine-Hospital Reports state that influenza is very prevalent in Berlin. The epidemic seems to be more virulent than usual, and a number of deaths have occurred.

Preventive Circular.—The faculty of the Budapest university has offered three prizes of $20 to $60 for the best article written in a popular style, designed to enlighten youth in regard to the nature, the consequences and the prophylaxis of venereal diseases.

Sleeping Sickness in a European.—Dr. C. França of Porto reports a case of trypanosomiasis in a man of 25 returning from Portuguese Africa after an absence of thirteen years. The subject had previously had malaria, beri-beri and blackwater fever. Trypanosomata were found in the blood.

Kaiserling Now a Professor.—Dr. K. Kaiserling was graduated only twelve years ago, and he has been privat docent and custodian of the pathologic museum at Berlin since 1901. He has now been made professor. In these few years he has won international fame by his method of preserving anatomic specimens in their natural colors. Some of his specimens have been on exhibition at all the large expositions of the last few years.

Death of the Improver of the Microscope.—E. Abbe died recently at Jena, aged 64. He was the inventor of numerous improvements in instrumental optics, and to him bacteriology owes its marvellous strides in late years He has been connected with the Zeiss factory, since 1860, and at the same time was honorary professor of astronomy and meteorology at Jena. His successful reorganization of the Zeiss establishment was on a basis which tends to solve some of the more pressing social problems of the day.

Medicine in the Prussian Budget.—According to our German exchanges, the Prussian government is much more liberal in its medical appropriations than is the case in this country. In the appropriations for the universities the effort is everywhere apparent to make practical use of the later achievements of medicine, some of which require costly equipment. In Berlin the new Polyclinic Institute for internal medicine is to be equipped with instruments and apparatus to cost over $5,000. The Anatomic Institute is to be enlarged at an expense of over $50,000, and about $25,000 is to be spent on the clinic for cutaneous and venereal affections, besides large amounts on other medical institutes, etc. For the campaign against trachoma this year nearly $88,000 has been again appropriated; $7,500 for research on foot and mouth disease; the same amount for the campaign against typhoid in the Trier district; $2,500 for cancer research, and $2,500 for the Berlin Cancer Hospital. A special laboratory is to be erected for Robert Koch, with $750 for its yearly maintenance. An innovation is an appropriation of $11,000 for supervision of harbors and shipping to keep out plague and cholera. New buildings are planned for seven university clinics and institutes, and a number of new assistants are to be appointed. Comparatively large amounts have been appropriated to bring the *x*-ray departments of the universities to a higher grade of excellence, and for the purchase of new instruments for the polyclinics, etc. A deficit of $52,400 at the Berlin surgical clinic is to be made up, and another at Göttingen of $7,500 and one at Marburg of nearly $1,400 in the ophthalmic clinic. The appropriation for postgraduate courses has been increased from $1,500 to $2,250.

Correspondence.

Panama—The Congress—The Canal.

Panama, Jan. 7, 1905.

To the Editor:—The fourth Pan-American Medical Congress was held at Panama, Jan. 2-6, 1905. In some respects Panama was a good place to hold a meeting. While geographically the country lies at nearly the hub of the western hemisphere, and is, perhaps, rather inaccessible to the majority of the represented nations, the congress was attended by representatives from Peru, Mexico, Guatemala, Nicaragua and Cuba, as well as from the United States.

As the specially chartered steamer *Athos*, which was unfortunately delayed and did not reach Panama until the afternoon of the last day of the meeting, carried some of the officers and about half those who attended, these physicians took no real part in the proceedings. Some papers of a thoroughly scientific nature were read, such as Frank's "Experiments and Experience in Liver Surgery," Senn's description of "Coxa Vara," Dr. W. C. Gorgas' résumé of "Sanitary and Hygienic Work in Havana," and Dr. Carlos Finlay's paper on "Sanitary Conditions in Cuba." The paper of Dr. Liceaga of Mexico, read by Dr. Ramon, gave the methods adopted by the Mexican government to stamp out plague in Mazatlan.

It was decided to hold the next meeting three years hence in Guatemala City, as this republic is very anxious to become the hostess. She has appropriated money for the purpose and promises to have ready the railway to the gulf, so that the journey from the United States will be comparatively easy. American delegates would have preferred the United States, Canada or Jamaica, but their opposition was not well enough organized to carry the point, and it is to be hoped that the expressed fear that the congress will become too Latin-American is unfounded.

Though Panama had little to show the visitors in the way of hospitals and laboratories, such as physicians usually expect in visiting foreign countries, there was the stupendous engineering problem involved in the construction of the canal, hand in hand with which goes the attempt to wipe out of existence the two diseases—malaria and yellow fever—which have hitherto been considered to be actually part of the soil and climate. In previous attempts at construction of the canal it was necessary to accept conditions as they were found, to dole out quinin, to treat individuals when they fell ill, and to give advice as to food, air and water. But here, for the first time, science is working on demonstrable medical as well as engineering facts. The microscope and instruments of precision are applied with as great accuracy as the steam dredge and there is a plan of sanitation as carefully outlined, estimated and undertaken as is the engineering plan itself.

Panama and Colon are probably the hottest places within the canal zone, while Culebra and Empire seem dryer and cooler. Panama has probably one or more cases of yellow fever nearly the whole year through, and to stamp it out of Panama, as has been done in Havana, the same methods must be adopted. Panama must be drained, the streets cleaned, and its houses fumigated. Colon must be equally well cared for and the whole canal area must be policed and inspected. Plans for this are already under consideration. The United States marines on the Isthmus live in barracks at Empire. They are picked men and are living under the strictest medical surveillance. Their food, water, clothing and hours of work and rest are rigidly controlled. They must be in bed at an early hour, they must sleep under mosquito netting, and they must take quinin. Even the better class of canal employes, the office force, have no such regimen. Each employe lives where he wishes or must, eats what he can get and exposes himself unrestrainedly. We wish to avoid the want and waste of the French, but not to fall into sinful economy, and to do justice to unacclimated employes a plain, comfortable barracks should be built on Ancon Hill or on the outskirts of Panama, where they not only may but must live. Some accessory zest and recreation such as clubs, gymnasiums and games should be added to the daily life of the employes to stimulate them to overcome the moral and physical enervation which has been so dreaded in tropical districts. The sanitary department is compelled to work under the old system of army contract surgeons, which may be well enough in its place, but on the Isthmus is not leading to the best results.

There were many excursions to various points of interest, two of the most enjoyable being to the island of Taboga, about eight miles across the bay, and to Culebra, where the practical and most decisive work on the canal is now in progress.

Albert B. Hale.

Fifty Consecutive Cases of Pneumonia Without a Death.

Scotland, Pa., Feb. 2, 1905.

To the Editor:—I just read with much interest the article by W. J. Galbraith, M. D., in The Journal, January 28, page 291, also the article by the same writer in The Journal, July 9, 1904, page 108. Dr. Galbraith has certainly been most fortunate in his treatment of pneumonia by the heroic use of sulphate of quinin, and he certainly deserves credit for the fearless expression of his convictions. With the march which this disease, "the captain of the men of death," is making annually, it is of the greatest moment that any successful manner of combating the power of the disease be recognized by the profession. With such apparently fortunate results by use of these large doses of sulphate of quinin that Dr. Galbraith reports, one naturally feels an honest desire to know whether this method might be the sheet anchor of the disease, or whether Dr. Galbraith was simply fortunate in the results. I am convinced that many members of the profession would be glad to read the opinions or conclusions of others regarding the probable success by this manner of using quinin in pneumonia.

John J. Coffman.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

THE ADMINISTRATION OF NITROGLYCERIN.

Rockport, Ky., Jan. 24, 1905.

To the Editor:—Referring to your editorial Oct. 22, 1904, on this subject, I find you state that von Noorden advises larger doses "than has hitherto been thought warrantable," stating that "when begun with small doses, as much as 1/6 gr., or even 1/5 gr. of nitroglycerin may be given in 24 hours." Please permit me to say, that in April and May, 1897, I began giving a man with chronic parenchymatous nephritis one drop of a 1 per cent. alcoholic solution of nitroglycerin (1/100 gr.) three times a day. I increased the dose as could be tolerated until more than 25 drops (1/4 gr.)—I do not remember just how much more, but more I know—were given three times a day (3/4 gr. a day). There were no bad effects at any time. Improvement and complete recovery accompanied its use.

I wish to say, also, that I dared to give these doses because of a case which I saw in Da Costa's clinic at Jefferson Medical College Hospital in October, 1888. A note made when attending these clinics reads: "Saw a young man on Oct. 20, 1888, who was taking 20 grains of pure nitroglycerin in 24 hours, for chronic parenchymatous nephritis, with good results and no bad effects. (See notes on clinics.)" This is no fiction. When the young man was presented, Dr. Stewart, chief of the clinic, read, "He is now taking 5 grains of nitroglycerin four times a day." Prof. Da Costa, interrupting, said, "You mean five hundredths of a grain." Dr. Stewart, blandly replied, "I mean five grains *of the pure drug*." Prof. Da Costa grew interested. Smilingly he said, "Let's see him take it." A dose of five grains was prepared in the presence of all. A sphygmograph was applied, and the dose was *administered*. Within less than three minutes the sphygmogram began to change in appearance. The effect, however, was not very great. The face flushed and the patient said there was just a slight fullness of the head. The records of Jefferson Hospital will corroborate me. And here is von Noorden, in 1904, saying that nitroglycerin may be increased in dosage to even 1/5 grain in 24 hours.

J. D. Maddox.

Answer.—In spite of the large *amounts* of nitroglycerin which can be given to animals without fatal result, medical men generally have been very cautious regarding its administration to human beings. This wariness is doubtless due to the fact that alarming symptoms are sometimes produced by relatively small quantities of the drug. A dose of 1/8 of a grain (2 1/2 gtt. of a 5 per cent. solution) has been known to cause vertigo and collapse. The literature indicates that when a patient begins with very small doses and gradually increases the amount, a marked degree of tolerance may be developed. The large doses referred to by our correspondent are truly remarkable, and would doubtless make even v. Noorden shudder. Our advice would be to go very slowly always until the tolerance in a given case has been made out. The main point to which we desired to draw attention by our editorial was the uncertainty of dosage of nitroglycerin in tablet form and the desirability of prescribing *it always in alcoholic solution*.

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

A. B. C. writes that he can not agree with Dr. Leffmann's statement in The Journal of February 4, p. 405, "that few if any teachers at the end of twenty years can represent the existing state of their science." A. B. C. says that men such as Osler, Welch, Halsted, Remsen and Kelly, of Johns Hopkins, and instructors, equally as long or longer in practice, in such institutions as Harvard, Chicago, Columbia, Ann Arbor, Pennsylvania and other universities, not only represent "existing" science, but are compelled to do so or original research would not progress; in fact, that no teacher would be tolerated at the leading colleges for more than a semester if he did not represent the "existing state" of his science. A. B. C. says that the teacher to whom he referred in his first letter teaches the physiology of years ago, and *apparently knows nothing of electrotonus, or rather never mentions it in his lectures*; that he never speaks of the neuron doctrine, or of regeneration of nerve fibers from the separated *peripheral endings; that he attributes everything to "uric acid* diathesis," while such products of metabolism as leucin, tyrosin, xanthin, nuclein, hypoxanthin, etc., appear to be mere words to him; that adenin and guanin are unknown; that he never mentions Flechsig's association centers in his lectures on cerebral localizations; that he seems unaware of the importance of oxybutyric acid in diabetes; that he still teaches the old idea of leucocytes producing the blood plaques; that his lectures indicate that he knows nothing of the internal ferment of the pancreas, or the presence of cholin in the cerebrospinal fluid, or the derivation of cholin from lecithin; and that Foster's Physiology and Howell's American text-books are apparently unknown to him except by name. He adds: "If, as Dr. Leffmann says, the charge of being behind the times could be used to vacate most professional chairs, why, then, *I say*, they should be vacated. Would any university tolerate an 'antique' teaching the chemistry, physics or biology of twenty years ago? Would any of our schools of pure science retain *the teacher who teaches such physiology* as I have cited? Why, then, are our medical schools so complacent and satisfied with themselves?"

Marriages.

John K. Jamieson, M.D., Chicago, to Miss Ethel Gibson of Waukesha, Wis., January 19.

Andrew C. Lawrence, M.D., Baltimore, to Miss Rosa Levin, at Ellicott City, May 11, 1904.

Charles C. Britt, M.D., to Miss Esther Tracey, both of Conshohocken, Pa., January 26.

Fremont C. Knight, M.D,. Waukegan, Ill., to Mrs. Mary Holman, at Chicago, January 25.

Ralph S. Mitchell, M.D., to Miss Mabel H. Lucas, both of Eden Prairie, Minn., January 25.

Thomas S. Lippincott, M.D., Pottstown, Pa., to Miss Viola White of Mount Holly, N. J., January 30.

Frank G. Carlson, M.D., Thornton, Iowa, to Miss Mary Atwater of Iowa City, Iowa, February 1.

William Ford Ward, M.D., to Miss Winifred Belle Farrington, both of Binghamton, N. Y., January 26.

Edwin Lincoln Goss, M.D., Carrington, N. D., to Miss Nellie Della Standish of Sanborn, N. D., January 15.

Francis W. Drew, M.D., Ethel, Mo., to Mrs. Lorena Lillian Cross of St. Louis, at Macon, Mo., January 26.

Beverly Randolph Kennon, *M.D.*, Norfolk, Va., to Miss Ruth Alexander Ferebee, at Oxford, N. C., February 1.

Deaths.

William Johnston, M.D. Transylvania University Medical Department, Lexington, Ky., 1838, the oldest practitioner in St. Louis, and third of the quartette of octogenarians honored two years ago by the St. Louis Medical Society at a banquet, to die; president of the St. Louis Medical Society for several years, died at his home in St. Louis, January 31, from senile debility, after an illness of nine weeks, aged 90. Eight ex-presidents of the society acted as honorary pall-bearers.

Phillip Long Dieffenbacher, M.D. Jefferson Medical College, Philadelphia, 1855; a member of the American Medical Association; the oldest practitioner in Mason County, Ill.; assistant surgeon and surgeon of the Eighty-fifth Illinois Volunteer Infantry in the Civil War; president of the Mason County Medical Society, and member of the Illinois State Medical Society, died at his home in Havana, Ill., January 29, aged 74.

John H. Doughty, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1863; surgeon during the Civil War; health officer of Matteawan and Fishkill, N. Y.; for several terms president of the Dutchess County Medical Society, died at his home in Matteawan, January 28, from pneumonia, after an illness of four days, aged 74.

John Shore, M.D. Jefferson Medical College, Philadelphia, 1842, formerly a member of the St. Louis city council and board of health, and a pioneer practitioner of that city, died at his home in St. Charles, Mo., from catarrhal pneumonia, after a long illness, aged 85.

Frederick Otis Spooner, M.D. University of Vermont Medical Department, Burlington, 1892, of Sherburne, N. Y., died at Faxton Hospital, Utica, N. Y., January 30, a few hours after an operation for obstruction of the common duct, aged 38.

Mathew R. Hall, M.D. New York University, New York City, 1857, colonel in the Confederate service during the Civil War, died suddenly at his home in Warrenton, Ga., January 28, from heart disease, aged 62.

Henry Boynton, M.D., Vermont Medical College, Woodstock, 1852, surgeon during the Civil War; author and lecturer on historical subjects, died at his home in Woodstock, Vt., January 30, aged 81.

Charles C. Ellis, M.D. University of Vermont Medical Department, Burlington, 1867, died at his home in Somerville, Mass., January 28, from pneumonia, after an illness of two weeks, aged 57.

Eugene C. French, M.D. University of Michigan Department of Medicine and Surgery, 1882, died at his home in Orlando, January 26, after an illness of four years, from chronic bronchitis, aged 50.

Edward Linzee Cunningham, M.D. Harvard University Medical School, Boston, 1832, said to have been the oldest graduate of that institution, died at his home in Newport, R. I., January 29, aged 95.

John Bagby, M.D. University of Maryland School of Medicine, Baltimore, 1867, died suddenly from heart disease at the residence of his daughter in Lake Village, Ark., January 29, aged 61.

Henry C. Herring, M.D. University of Louisville (Ky.) Medical Department, 1859, died at his home in Lancaster, Ky., January 19, from septicemia, after an illness of three weeks, aged 72.

John M. Donlan, M.D. Harvard University Medical School, Boston, 1897, a noted athlete, died at his home in Fitchburg, Mass., from consumption, after a long illness, January 26, aged 31.

Walter Day Otis Kellogg Strong, M.D. University of Buffalo (N. Y.) Medical Department, 1847, died suddenly at his home in Fishkill Landing, N. Y., January 26, from heart disease, aged 81.

Jesse C. Waldo, M.D. College of Medicine, Syracuse (N. Y.) University, 1897, died at his home in Hulburton, N. Y., January 24, from pneumonia, after an illness of nine days, aged 32.

Jephtha Phelps Haynes, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, died at his home in Beaumont, Texas, January 26, after a long illness, aged 78.

Francis J. Lemoyne Johnson, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1897, died suddenly at his home in Washington, Pa., January 25, aged 33.

Samuel Johnson Mathews, M.D. University of Nashville, 1859-1860, died at his home in Mayfield, Ky., January 21, from septicemia, after an illness of seven weeks, aged 70.

Virgil W. Conner, M.D. Illinois, 1890, died at his home in Lansing, Mich., of which he was city physician for two years, from paresis, after an illness of one year, aged 57.

Lucinda Dille, M.D. Cincinnati, Ohio, 1855, medical missionary in Jamaica for three years, died at the home of her nephew in Red Oak, Iowa, June 17, 1904, aged 83.

James McElderry Mullikin, M.D. University of Maryland, Baltimore, 1842, died at his residence near Collington, Prince George's County, Md., February 1, aged 85.

Andrew H. Askew, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, died at his home in Harrellsville, N. C., February 1, aged 61.

John Stoddard, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900, died suddenly at his home in Silver Creek, Neb., January 30.

Louis De Plasse, M.D. University of Louvain, Belgium, 1866, died at his home in New York City, January 24, from the effects of a runaway accident two years before.

William B. Squire, M.D. Cincinnati, 1857, surgeon during the Civil War, died suddenly from heart disease, January 28, at his office in Worthington, Ind., aged 74.

Dwight W. Chase, M.D. Jefferson Medical College, Philadelphia, 1846, formerly of Delphos, Kan., died at the home of his daughter in Salina, Kan., January 18.

Henry Vidal, M.D. University of Berlin, Germany, 1873, died at his apartments in Tacoma, January 21, from nephritis, after an illness of two years, aged 55.

Homer L. Bartlett, M.D. College of Physicians and Surgeons in the City of New York, 1858, of Brooklyn, died at Thomasville, Ga., February 3, aged 74.

Squire S. Dilley, M.D. Cincinnati, 1894, died at his home in Pemberville, Ohio, January 28, from pneumonia, after an illness of four days, aged 45.

William W. Wilson, M.D. University of Maryland School of Medicine, Baltimore, 1866, died at his home in Glenarm, Md., February 2, aged 78.

William A. Mitchell, M.D. Medical School of Virginia, Richmond, 1873, died at his home in Mangohick, Va., February 2, aged 63.

Callohill M. Stigleman, M.D. Medical College of Virginia, Richmond, 1857, died January 30 at his home in Floyd, Va., aged 75.

Jennie Low Lynch, M.D. New York City, 1897, died recently from pneumonia at the home of her mother in Liberty, N. Y., aged 40.

Andrew J. Wesco, M.D. Ohio, 1881, mayor of Seven Mile, Ohio, died at his home in that place, January 30, after a long illness.

Leonidas M. Jones, M.D. Ohio, 1857, died at his home in Brooklyn, Mich., from senile debility, January 30, aged 82.

State Boards of Registration.

COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Alabama Report for 1904.—Dr. W. H. Sanders, chairman of the State Board of Examiners, reports the written examinations held in Alabama during 1904. The number of subjects examined in was 10, and percentage required to pass, 75. The total number examined was 138, of whom 13 were undergraduates. One hundred and eighteen passed, including 4 undergraduates, and 20 failed, of whom 9 were undergraduates. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Medical College of Alabama, (1884) 90, (1892) 78, (1900) 96, (1901) 84, (1902) 87, (1903) 90, 91. In 1904 the grade of 77 was reached by three, 79 by one, 81 by one, 82 by one, 83 by four, 84 by two, 86 by three, 87 by two, 88 by one, 89 by three, 90 by two, 91, 94, 95 and 96 by one each.		

Tulane University	(1904)	79, 79, 81, 87, 89, 89, 90, 96
Chattanooga Med. Coll.,	(1902) 78, (1904)	78, 78, 80, 83, 84, 84, 84, 86, 91.
University of Tennessee	(1893) 80, (1904)	94, 95
University of Nashville	(1903) 88, (1904)	75, 76, 78, 86, 86
Memphis Hosp. Med. Coll.,	(1903) 75, 79; (1904)	75, 78, 79, 80, 85, 86, 87, 87, 90.
Vanderbilt University	(1903) 93, (1904)	82, 86, 88
Univ. of Virginia	(1897) 88, (1900) 90, (1901) 80, (1904)	79
Columbia University	(1904)	84, 89
University of Naples	(1900)	81
Meharry Medical College	(1904) 82, 85; (*)	81
Maryland Medical College,	(1904)	75, 77, 78, 79, 81, 81, 83, 89
Harvey Med. Coll., Chicago	(1898)	79
Birmingham Med. Coll.	(1904)	94, 94, 96
Atlanta College of P. and S.	(1902) 88, (1904)	91, 93
University of Michigan	(1903)	81
College of P. and S., Chicago	(1898)	91
University of the South	(1904)	85
Louisville Medical College	(1903) 75, (1904)	82
Eclectic Med. *Inst., Cincinnati*	(1902)	76
Georgia Coll. of Med. and Surg	(1894)	76
Georgia Coll. Ecl. Med. and Surg	(1904)	96
Leonard Medical College	(1904)	89
University of Pennsylvania	(1904)	90
Louisville Medical College	(1903)	89
Illinois Medical College	(1904)	78
University of Texas	(1904)	81
Undergraduates		76, 76, 79, 79

*Year of graduation not given.

FAILED.

Tulane University	(1904)	73
University of Michigan	(1904)	52
Medical College of Alabama	(1904)	67
Eclectic Med. Coll., Atlanta	(1904)	74, 50
Chattanooga Med. Coll	(1903) 73, (1904)	54
University of Tennessee	(1903)	73
Howard Medical College	(1903) 72, (1904)	72
Louisville Hosp. Med. Coll	(1904)	65
Maryland Med. Coll.	(1904)	51
Undergraduates		69, 60, 58, 71, 74, 69, 73, 63, 54

The general average of all representatives of the Medical College of Alabama who passed was 86.2; of Tulane University, 86.2; of Chattanooga Medical College, 82.6; of University of Nashville, 81.5; of Memphis Hospital Medical College, 81.9.

Arizona January Report.—Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 2-4, 1905. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 80. The total number examined was 15, of whom 12 passed and 3 failed. The following colleges were represented:

College. PASSED.	Year Grad.	Per Cent.
Barnes Medical College	(1900)	80.5
Jefferson Medical College	(1903)	85
University of Iowa	(1900)	92
Illinois Medical College	(1901)	80
Cornell University	(1903) 89, (1904)	88
American Medical Missionary College, Chicago	(1901)	94
Bennett Medical College	(1895)	80
University of Southern California	(1904)	85, 81.6
College of P. and S., New York	(1888)	80.5
College of P. and S., Ontario	(1903)	89
FAILED.		
Illinois Medical College	(1901)	65.5
College of Medicine and Surgery, Keokuk	(1889)	50.6
Michigan College of Medicine and Surgery	(1902)	44

Association News.

Yellowstone Park—Portland Special.

A sufficient number have indicated their desire to take in the Yellowstone Park on the way to the next session of the American Medical Association at Portland to warrant engaging the park for the party. As indicated last week, the number will be limited to 250, and it will be well for those who intend to go to send in their names as early as possible. Mention of this special was made editorially in The Journal, January 28, and under "Association News" in last week's issue. Further information in regard to this and other trips will be published week by week as information reaches this office.

Bill to Incorporate the American Medical Association.

On February 2 Senator McComas of Maryland introduced in the senate the bill to incorporate the American Medical Association (S. 7040). It was read twice by its title and referred to the committee on the judiciary, which is composed of Messrs. Platt of Connecticut (chairman), Clark of Wyoming, Fairbanks, Nelson, McComas, Depew, Mitchell, Spooner, Bacon, Pettus, Culberson, Blackburn and Patterson. The introduction of the bill in the House was mentioned in The Journal, January 21, p. 227. The bill, therefore, is in both the Senate and the House.

The Senn Prize Essay.

The committee on the Senn Medal begs leave to call attention to the following conditions governing the competition for this medal for 1905: A gold medal of suitable design is to be conferred on the member of the American Medical Association who shall present the best essay on some surgical subject. The award will be made under the following conditions: (*a*) The name of the author of each competing essay must be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device is to be read at the session at which the award is made, and the corresponding envelope is to be then and there opened and the name of the successful author announced. (*b*) All successful essays become the property of the Association. (*c*) The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the Association. (*d*) The competition is to be confined to those who, at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the American Medical Association. (*e*) The competition for the medal will be closed on, and no essays received after, April 1, 1905. Communications may be addressed to any member of the committee, which consists of the following: Dr. James E. Moore, chairman, 704 Pillsbury building, Minneapolis; Dr. M. L. Harris, 100 State Street, Chicago; Dr. Floyd McRae, Atlanta, Ga.

NEW MEMBERS.

List of members for the month of January, 1905:

ALABAMA.

Mason, F. H., Brewton.
McDowell, Wm. P., Eufala.

ARIZONA.

Purcell, W. B., Tucson.
Rodgers, M. A., Tucson.

ARKANSAS.

Alexander, Frank Stan, Houston.
Baker, J. P., Morrell.
Counts, G. D., Wesley.
Hardin, A. E., Fort Smith.
Jordan, J. F., McNeil.
King, Marion N., Texarkana.
Moore, W. A., Hindsville.
Martin, J. E., Hindsville.
Neighbors, G. G., Warm Springs.
Paddock, C. B., Fayetteville.
Rieff, W. L.,
Stark, C. B.,
Throgmorton,

CALIFORNIA.

Anthony, R. Seldon, Fresno.
Burlew, Jesse M., Santa Ana.
Brink, H. O., Lakeport.
Blake, Wm. F., San Francisco.
Bertola, Mariana, San Francisco.
Benton, Julian J., Berkeley.
Bates, Homer O., Long Beach.
Brennan, T. F., San Francisco.
Clark, J. Emmet, Alameda.
Clark, John Ingram, Santa Ana.
deChantreau, J. D., San Francisco.
Day, Robt. V., Los Angeles.
Dawley, Chas. G., Los Angeles.
Franch, Chas. E., San Francisco.
Gerson, T. P., Los Angeles.
Hubbell, Geo. R., San Francisco.
Hull, Leonard C., Hollister.
Hastings, Hill, Los Angeles.
Inman, Thomas G., San Francisco.
Lartigau, August Jerome, San Francisco.
Leith, H. Ovonder, San Francisco.
Moulton, D. H., Chico.
Medlock, James Randolph, Santa Ana.
Moore, E. C., Los Angeles.
McCue, James Edw., San Francisco.
Ophuls, William, San Francisco
Perry, C. D., Fresno.
Plymire, A. G., South San Francisco.
Pryor, F. O., Scotia.
Phelan, Henry R., San Francisco.
Robarts, H. P., San Francisco
Rankin, J. E., Gonzales.
Reed, J. D., Covina.
Ritchie, A. M., Pacific Grove.
Shurtleff, F. C., Los Angeles.
Spalding, Alfred B., San Francisco.
Smith, R. K., San Francisco.
Thorpe, Lewis Sanborn, Los Angeles.
Thompson, Allen Milo, Sonoma.
Witter, G. F., San Jose.
Wilson, A. P., Los Angeles.
Wernigk, R., Los Angeles.

COLORADO.

Dyde, Charles B., Greeley.
Foster, W. C., Gulch.
Haggart, J., Durango.
Lathrop, H. R., Como.
Monroe, Duncan Daniel, Hillrose.
Midgley, Arthur E., Denver.

CONNECTICUT.

Beebe, George H., Guilford
Dumortier, Jean, So. Norwalk
Glynn, D. L., Portland.
Robinson, Paul S., New Haven
Stanton, T. Francis, Bridgeport
Turner, Arthur Robert, Norwalk

DISTRICT OF COLUMBIA

Heller, Joseph M., Washington
Karpeles, S. R., Washington
McLean, N. T., Washington.
Nichols, J. B., Washington.
Stitt, E. R., Washington.
Stromberger, Henry H., Washington.
Seibert, E. G., Washington

FLORIDA.

McKee, W. P., Eustis

GEORGIA.

Alexander, Geo. L., Forsyth.
Buxton, T. A., Girard.
Gostin, B. S., Macon.
Jeffords, H. M., Sylvester.
Tankersley, J. S., Ellijay.

IDAHO.

Cooper, A. J., Nez Perce.
Louis, J. D., Saint Anthony.

ILLINOIS.

Anderson, H. V., Westfield.
Brown, J. Archibald, Kankakee.
Burtt, A. S., Momence.
Benson, John P., Joliet.
Barton, Francis W., Danville.
Culter, F. O., Gibson City.
deTarnowsky, George, Chicago.
Ehle, C. E., Quincy.
Fitzpatrick, M. W., Decatur.
Fowler, J. V., Chicago.
Fantus, Bernard, Chicago.
Herzog, A. E., Ottawa.
Hedger, Caroline, Chicago.
Hartman, A., Chicago.
Hill, Chas., Chicago.
Hall, Geo. W., Chicago.
Hoiby, Chas. O., Chicago.
Ingalls, Frank M., Highland Pk.
Isaacs, L. J., Chicago.
Johnson, R. P., Chicago.
Jones, Walter C., Chicago.
Knox, William T., Manchester.
Kingsley, V. C. T., Danville.
Kurtz, Charles J., Chicago.
Kell, A. P., Kell.
Lovell, John Gibbs, Chicago.
McRoberts, Wm. A., Joliet.
Miller, David Warren, Gilman.
McCormick, Franklin L., Carthage.
Milligan, Geo. W., Edinburg.
McComas, George U., New Canton.
Munch, Louise L., Joliet.
McDonald, James T., Mattoon.
Miller, A. Merrill, Danville.
Malcolm, Janet, Chicago.
Mowry, A. E., Chicago.
McGown, Jno. D., Chicago.
Pollock, Arthur D., Rushville.
Porter, F. D., Chicago.
Rivard, Geo. J., Assumption.
Rhodes, S. Ora M., Bloomington.
Richter, Arthur J., Chicago.
Scheve, Elmer F., Mascoutah.
Servass, A. G., Havana.
Schoennesholfer, Wm., Lostant.
Smith, J. W., Cutler.
Smith, Orman E., Bushton.
Taylor, J. B., Bloomington.
Voight, C. B., Mattoon.
Wray, Austin L., Alexis.
Whitlock, C. E., Columbus.
Weir, Chas. F., Chicago.
Wassall, Joseph W., Chicago.

INDIANA.

Abel, O. E., Modoc.
Bird, Joseph E., New Albany.
Birchfield, James William, Guilford.
Berkley, A. L., Rensselaer.
Bulla, Joseph M., Richmond.
Courtney, Thomas E., Indianapolis.
Cluthe, Wm., Tell City.
Carter, La[illegible]
Collins, C. C., [illegible]
Coleman, [illegible]
Duncan, W. [illegible]
Gardner, Lucy Woodward, Bloomington.
Hinkle, E. I., Goldsmith.
Hoggett, W. W., French Lick.
Hunter, F. S., Bedford.
Moroney, James H., Winchester.
McKee, Charles E., Dublin.
MacCammon, J. W., Laurel.
Poland, Ulysses G., Muncie.
Revis, George, Lafayette.
Robinson, George M., Loogootee.
Rose, Bishop A., Linton.
Roark, Charles A., Milton.
Reynolds, O. M., Clayton.
Shanklin, E. M., Hammond.
Schneider, A. L., Fort Wayne.
Spoor, John Sellers, Brooklyn.
Walters, C. R., Paxton.
Walter, Frederick J., Kramer.
Ward, Jno. P., Veray.
Wybourn, D. C., Sheldon.

INDIAN TERRITORY.

Callaway, James R., Paul's Valley.
Martin, A. E., Marietta.

IOWA.

Choate, Cora Williams, Marshalltown.
Heald, Clarence L., South English.
Huffman, F. G., Gowrie.
Lambert, E. J., Ottumwa.
Lord, Frederic P., Iowa City.
Maxwell, J. P., Clearfield.
Pascol, M. D., Ottumwa.
Rennison, Allen Geo., W. Union.
Stoker, Wm. B., Hawarden.
Torpey, J. F., New Hampton.

KANSAS.

Axtell, J. T., Newton.
Algie, Robert, Linn.
Dykes, J. B., Lebanon.
Dykes, H. A., Lebanon.
Mason, E. G., Cawker City.
Riley, B. R., Coyville.
Taylor, N. J., Berryton.

KENTUCKY.

Agnew, C. L., Harrodsburg
Anderson, W. H., Louisville.
Avritt, Beauford E., Bradfordsville.
Barber, J. L., Pembroke.
Barnhill, Jno. W., Owensboro
Beard, J. H., Livermore
English, Jno. Morris, Elizabethtown.
Erkiletian, Dickson H., Laytonsville.
Gore, R. C., Lone Oak.
Griffith, Daniel M., Owensboro
Jackson, Jno. D., Danville.
Lee, F. W., Boxville.
Morrison, J. Rowan, Louisville.
McGary, J. R., St. Mary's College, St. Mary.
Mahoffey, J. A., Sturgeon.
Orendorf, Henry, Louisville
Pack, John E., Georgetown.
Smith, Wm. Hereford, Lexington.
Scholl, Joel Buford, Jabez
Sauter, Chas., Louisville
Sublette, S. O., Mortonsville
Travis, D. J., Eddyville.
Turner, Thomas H., Owensboro

LOUISIANA.

McConnico, C. V., Kentwood.
Purnell, Millard R., Shreveport.
Willis, D. O., Leesville.
White, Ernest A., New Orleans

MAINE.

Burr, Chauncey Rea, Portland.
Cochrane, Jasper Duncan, Saco
Horr, Jacob L., Westbrook.
Lombard, Herbert A., Bridgton.
Littlefield, J. G., S. Paris.
Miller, Geo. W., Kennebunkport.
Milliken, Walter S., Madison.
Nichols, Jno. W., Farmington.
Prescott, Harry L., Kennebunkport.
Smith, Thos. P., Westbrook.
Stanhope, Alvin H., Dover

MARYLAND.

Boyer, H. R., Accident.
Cole, Rufr[illegible] I., B[illegible]
Cohen, Le[illegible], B[illegible]
Emerson, [illegible] P., B[illegible]
Hedges, H. S., B[illegible]
Mitchell, H. Arthur, Elkton.
Mullinix, Elisha E., Urbana
Nalley, Harry, Accokeek.
Pennington, Jno. I., Baltimore.
Pound, Jno. C., Baltimore
Sprecher, Daniel B., Sykesville.
Thornton, Jessie M., Baltimore.
Todd, M. L., Baltimore.
Todd, Geo. W., Salisbury.
Wegefarth, Geo. C., Baltimore.
Waters, Mary A., Baltimore.

MASSACHUSETTS.

Andrews, E. A., Newton Centre.
Blake, Allen Hanson, N. Cambridge.
Bailey, W. T., Boston.
Bond, W. L., W. Somerville.
Crowley, J. F., Adams.
Chase, Richard Fitch, Boston.
Drury, D. W., Lowell.
Donoghue, Jno. Joseph, Clinton.
Draper, Alexis L., Boston.
Dwyer, Jno. E., Cambridge.
Edmonds, Louis, Harwich
Ely, Richard S., W. Townsend.
Fuller, Frederick H., Walpole.
French, C. E., Lowell.
Greenough, R. B., Boston.
Howe, J. D., Cheshire.
Haskell, Harris B., Auburndale.
Howland, Clarence E., N. Dartmouth.
Hurd, W. W., Adams.
Keene, Chas. H., Lowell.
Mead, Louis Guy, Boston.
McCarthy, T. F., Marlboro.
Markham, E. W., Lee.
Martin, Jno. M., Boston.
Norwood, E. W., Spencer.
Norris, Albert Perley, Cambridge.
Parker, Harry Caldwell, Boston.
Patterson, William Francis, Charlestown.
Smyser, Chas. J., Harwich.
Saunders, J. H., Brookline.
Warren, Henry Stanley, Boston.
Withington, Alfreda B., Pittsfield.
Wilbur, Hubert G., Fall River.

MICHIGAN.

Bruegal, Oscar A., Agricultural College.
Carroll, M. A., Ludington.
Daudna, J. F., Lake City.
Duguid, Lee H., Custer.
Fox, Jno. W., Orion.
Gregg, Wm. T. S., Calumet.
Godfrey, A. T., Holland.
Howell, M. L., Hastings.
Johnson, J. H., Midland.
Lawton, D. G., Cheboygan.
Livingston, G. M., Manistique.
Martin, Adelbert W., Howard City.
Olmsted, Stephen G., Kawkawlin.
Quick, P. H., Olivet.
Quick, Paul A., Muskegon.
Rowley, James Arthur, Durand.
Snyder, John, Mecosta.
Sprague, Frederick P., Wyandotte.
Sleight, R. D., Battle Creek.
Savage, A. E., Gowen.
Vernier, Jean A., Detroit.
Whitney, W. A., Big Rapids.
West, Arthur Eddy, Eaton Rapids.

MINNESOTA.

Aurness, P. A., Minneapolis.
Bendeke, Karl, Minneapolis.
Green, Eugene K., Minneapolis.
Hughes, Helen, Mankato.
Henry, Clifford P., Minneapolis.
[illegible] Paul.
[illegible]
Olson, O. Hansteen, Erskine.
Reineke, G. F., New Ulm.
Rogers, G. M. F., Buffalo.
Thomas, David Owen, Minneapolis.
Van Slyke, Chas. A., St. Paul.

MISSISSIPPI.

Anderson, Wm. C., Forest.
Donaldson, J. S., Algoma.
Flowers, H. J., Kilmichael.
French, J. C., Natchez.
Grady, William Jackson, Mettleton.
Hughston, W. L., Red Banks.
Henderson, J. W., Lyon.
Moody, W. E., Lake.
Rainey, P. T., Cascilla.
Williams, H. G., Mt. Carmel.
West, H. H., Gulf Port.

MISSOURI.

Apperson, Edwin L., St. Louis.
Ashley, John, Bloomfield.
Briney, E. A. P., Bloomfield.
Balsley, J. A., Kansas City.
DeLorme, Homer A., St. Louis.
Eure, J. B., Brookfield.
Goldman, Max, Kansas City.
Hammer, Marshall D., Bertrand.
Jacobs, Benj., Kansas City.
McClanahan, John M., Guilford.
Maynard, Geo. K., Hitt.
Pitney, Orville, Forest Green.
Platter, A. E., Memphis.
Rosebraugh, F. H., St. Louis.
Staats, Ethan F., Beaman.
Webster, Chas. L., Trenton.

MONTANA.

Lees, A. T., Whitefish.
Sullivan, J. B., Butte.

NEBRASKA.

Emerson, A. G., Lewiston.
Fitzsimmons, A. P., Tecumseh.
Hauser, Byron B., Hooper.
Hall, Byron W., Bennington.
Lucas, Charles, Shelton.
Moriarty, P. C., Omaha.
Rork, L. Wallace, Oxford.
Singer, Harold Douglas, Omaha.
Slusser, F. B., Greenwood.
Thurston, E. D., Burwell.
Van Keuren, Jno., Fullerton.

NEW HAMPSHIRE.

Brownrigg, A. E., Nashua.
Gilman, L. L., Rochester.
Jones, E. E., Colebrook.
Johnson, Francis E., Erving.
Knowlton, Jno. G. W., Exeter.
Little, C. S., Laconia.
Russell, Julia Wallace, Concord.
Taylor, Herbert Leonel, Portsmouth.

NEW JERSEY.

Adsit, N. H., Succasunna.
Burt, N. Howard, Ocean City.
Barrington, R. C., Mount Holly.
Cater Douglas Aymar, East Orange.
Clark, A. Schuyler, New Brunswick.
Hunt, Ralph H., E. Orange.
Hetherington, William, Jersey City.
Hughes, Frederick J., Plainfield.
Lawrence, I. Alfred, Elizabeth.
Leyenberger, S. B. Whitman, Newark.
Menk, Paul E., Newark.
Pechin, Edward C., Camden.
Simpson, Maxwell S., Middle Valley.
Staehlin, Edward, Newark.
Traub, Paul, Bordentown.

NEW MEXICO.

Clarke, S. C., Madrid.
Fest, Francis T. B., Las Vegas.
Radcliffe, Wm. D., Belen.

NEW YORK.

Aronson, M., New York City.
Blanchard, Geo. W., Highland Falls.
Belt, Henry, New York City.
Branth, J. H., New York City.
Bauer, Frederick E., New York city.
Friedman, Sam'l, New York City.
Foerster, F., New York City.
Hoving, Johannes, New York City.
Laidlaw, Frank W., Hurleyville.
Mayne, Henry H., Lockport.
Ochs, Benjamin, New York City.
Price, Norman W., Niagara Falls.
Sohmer, A. E., Buffalo.
Schneider, L. H. A., New York City.
Stocker, Geo. B., Buffalo.
Wilkins, E., New York City.
Ybarra, A. M. Fernandez, New York City.

NORTH DAKOTA.

Brustad, L. A., Park River.
Thompson, Roy C., Wilton.
Thelen, Wm. P., Carpio.

OHIO.

Bauer, Arthur C., Cincinnati.
Caris, T., Lykens.
Carney, A. C., Eldorado.
Faller, Albert, Cincinnati.
Gillette, A. E., Cincinnati.
Graefe, W., Sandusky.
Hall, Edward M., Delaware.
Harpster, C. M., Toledo.
Love, Wesley, Higginsport.
Langholz, H., Oak Harbor.
Miller, Jno., Cincinnati.
Osburn, C. W., Samantha.
Roebuck, Linn L., Richwood.
Sturgiss, A. G., Lower Salem.
Shirey, O. M., Cleveland.
Stix, Walter Henry, Cincinnati.
Schuffell, Harry M., Canton.
Soyer, Geo. P., Cleveland.
Smith, Frank, Lovett.
Tucker, N., Mt. Gilead.
Thomas, J. J., Cleveland.
Ward, Joseph, Cortland.

OKLAHOMA.

Cullum, Arthur B., Hennessey.
Clark, Fred H., El Reno.
Colby, Geo. Biscoe, Cloud Chief.
Hartford, Jno. S., Colony.
Kerley, James W., Cordell.
Pungardt, A. H., Cordell.
Sherburne, Alberto M., Cordell.
Tidball, Wm., Sentinel.

OREGON.

Herdlen, Elmer F., Baker City.
Klopper, Henry, Kerby.
Parker, Ivan B., Grants Pass.
Smith, W. Carlton, Salem.

PENNSYLVANIA.

Anderson, Geo. R., Easton.
Adams, Charles T., Philadelphia.
Anders, J. Wesley, Philadelphia.
Beardwood, Matthew, Philadelphia.
Boyle, P. F., So. Bethlehem.
Dodson, Boyd, Wilkesbarre.
DeMuth, Jesse Smith, Grafton.
Dale, David, Currensville.
Ewing, G. J., Washington.
Eaton, Paul, Wilkinsburg.
Evans, Geo. O., Uniontown.
Falkowsky, Chas., Scranton.
Frey, Lewis, Scranton.
Faddis, Thomas M., Charleroi.
Graves, C. T., Monongahela City.
Hirsch, Charles S., Philadelphia.
Hosmer, Chas. M., Philadelphia.

Highley, Geo. E., Conshohocken.
Hausman, William A., Sr., Allentown.
Hubley, B. F., Norristown.
Hertzog, Chas. H., Pittsburg.
Heller, S. H., Lancaster.
Hartzell, R. K., Allentown.
Harris, Amos J., Hellertown.
Jordan, Henry D., Philadelphia.
Kirk, Geo. B., Kylertown.
Knowles, Frank Crozer, Philadelphia.
Laird, J. Packard, Devon.
Liggett, Samuel J., Philadelphia.
Mollmann, Rudolph C., Philadelphia.
Macfarlane, Catharine, Philadelphia.
Mann, Enos S., Dallastown.
Merrick, Geo. E., Genesee.
Noecker, Chas. B., Scranton.
Nesbit, Jno. C., South Burgettstown.
Otto, C. J., Allentown.
Price, Geo. E., Philadelphia.
Parker, Frank C., Morristown.
Pownall, Elmer E., Richboro.
Schumann, E. A., Philadelphia.
choller, C. W., Philadelphia.
imer, Sterling D., Easton.
pe, Jacob W., Harrisburg.
ith, John Green, Philadelphia.
hamberg, Morris I., Philadelphia.
Shields, M. J., Scranton.
Schoffstall, Joseph Wellington, Sunbury.
Schultz, C., Danville.
Walter, J., Lebanon.
Weider, Henry S., Philadelphia.
Warmuth, M. P., Philadelphia.
Weeks, Albert, Phoenixville.
Wolff, W. E., Arendtsville.

PHILIPPINE ISLANDS.

Dudley, Frank Wilburn, San Fernando, Pampanga Province, Luzon.
Thomas, Jerome B., Jr., Baguio Benguet.

RHODE ISLAND.

Kennon, C. E. V., Providence.
Lovewell, H. P., Providence.
Miller, Albert H., Providence.

SOUTH DAKOTA.

Clauser, G. A., Bridgewater.
Jennings, R. D., Hot Springs.
Kalayjian, D. S., Parker.

TENNESSEE.

Erwin, W. T., Erwin.
Love, C. T., McLemoresville.
Lowry, Jas. B., McCays.
Peete, Edwin Morris, Memphis.
Roberts, T. M., Sweetwater.
Smith, J. H., Trimble.
Sevier, Jno. H., Brownsville.
Williams, Jno. P., Ravenscroft.

TEXAS.

Ahlers, O. C., Sherman.
Burditt, J. B., Brenham.
Beckmeyer, J. F., Hondo.
Bryan, O. J., Park.
Cantrell, C. E., Greenville.
Carter, Thomas Jay, League City.
Callan, G. P., Hasse.
Dobbs, J. C., Ganado.
Finney, William D., Wrightsboro.
Farrington, J. B., Chillicothe.
Fowler, Bradley A., Brownwood.
Fowler, Davis D., Paint Rock.
Greenwood, Jas., Jr., San Antonio.
Hanks, M. L., Barry.
Harral, Whitefield, Dallas.
Harris, R. A., Pleasant Grove.
Howard, Elmer M., Batesville.
Honeycut, Joseph B., Hookerville.
Hutchinson, G. W., Ebony.
Hearn, R. E., Mabank.
Jenkins, G. H., Howard.
Justice, A. L., El Paso.
Kruger, F. R., Galveston.
Kusch, L., Pottsboro.
Lemmon, W. N., Commerce.
Leach, Elisha, Galveston.
Lowry, Stanley T., San Antonio.
McCall, J. G., Brady.
McCracken, Joe Hill, Mineral Wells.
Miller, Felix P., El Paso.
Nibling, G. W., Miles.
Parks, J. M., Elkhart.
Phenix, N. J., Colorado.
Paxton, J. H., Elkhart.
Pedigo, H. B., Dearborn.
Proctor, T. K., Sulphur Springs.
Robertson, H. W., Waelder.
Reagan, W. H., Channing.
Simmons, D. H., Southmayde.
Sadler, Jos. G., Henderson.
Smith, I. S., Burgess.
Thornton, Charles W., Channing.
Thomas, E. M., Georgetown.
Walcott, H. G., Dallas.
Washburn, W. R., DeSoto.

UTAH.

Bickford, Frederick D., Salt Lake City.
Snyder, C. C., Salt Lake City.

VERMONT.

Arnold, Francis J., Burlington.
Bidwell, Geo. S., Waterbury.
Couter, G. O., Burlington.
Dalton, Chas. F., Burlington.
Gregg, J. W., Brattleboro.
Heidel, L. A., Rutland.
Johnson, C. K., Burlington.
Johnson, Robert W., Burlington.
Miner, R. H., Rutland.
Stone, B. H., Burlington.

VIRGINIA.

Burns, Oliver S., Lebanon.
Baptist, H. L., Ivy Depot.
Call, Manfred, Richmond.
Cottingham, G. R., Remington.
Delaney, Martin D., Alexandria.
Field, M. C., Independence.
Jett, E. T., Fredericksburg.
Osborne, J. D., Petersburg.
Ruffin, Kirkland, Norfolk.
Robbins, Chas. R., Richmond.
Taliaferro, B. L., Richmond.
Tompkins, J. Edwards, Fredericksburg.

WASHINGTON.

Austin, A. S., Aberdeen.
Hathaway, Jno. R., Everett.
Nelms, M. A., Walla Walla.
Reed, Connor O., Bellingham.
Russell, Montgomery, Seattle.
Thompson, J. D., Winlock.
Tripp, Geo. A., South Bend.
Yarnell, Silas, Spokane.

WEST VIRGINIA.

Dupuy, E. S., Parral.
Few, S. D., Parsons.
Riggs, C. W., Cameron.
Shawkey, A. A., Charleston.
Varner, H. V., Clarksburg.

WISCONSIN.

Bayer, Wm. H., Gleason.
Butler, F. E., Menomonie.
Denham, Jno. F., Downsville.
Gordon, W. A., Jr., Oshkosh.
Haddy, G. H., Park Falls.
Lothrop, Charles Arthur, Wautoma.
MacDonald, Ed., Cuba City.
Meyst, Chas. H., East Troy.
Muenzer, Richard Jno., Allenton.
Morse, E. A., Appleton.
Merritt, W. D., Janesville.
May, J. V., Red Granite.
Ruhland, G. C., Milwaukee.
Rowles, J. A., LaCrosse.
Ribenack, Geo. A., Menomonie.
Sleicher, J. M., Watertown.
Steves, Bert J., Menomonie.
Stubenvell, Carl E., Oshkosh.
Thayer, C. E., Markesan.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 4, 1905:

Brechemin, Louis, Jr., asst.-surgeon, reports as on temporary duty as examiner of recruits. San Francisco since Jan. 18, 1905.

Owen, William O., surgeon, ordered to proceed from Fort Logan, Colo., to U. S. Army General Hospital, Presidio of San Francisco for treatment.

Girard, A. C., asst.-surgeon, granted thirty days' leave of absence with permission to apply for thirty days' extension.

Torney, George H., deputy surgeon general, ordered in addition to present duties, to take charge of chief surgeon's office, Department of California, during leave of the latter.

Hoff, John Van R., asst.-surgeon general, promoted colonel, to date from Jan. 19, 1905.

Davis, William B., deputy surgeon general, promoted lieutenant-colonel, to date from January 19, 1905.

McCulloch, C. C., Jr., surgeon, promoted major, to date from Jan. 19, 1905.

Halliday, Francis A., contract surgeon, left World's Fair grounds, St. Louis, January 27, for his proper station, Fort McPherson, Ga.

McMillan, Clemens W., contract surgeon, returned to duty January 26, at Fort Terry, N. Y., from leave of absence.

Whinnery, Jean C., dental surgeon, ordered from Vancouver Barracks, Wash., to Forts Walla Walla and Wright, for temporary duty.

Adair, George F., contract surgeon, left Fort Wadsworth, N. Y., February 2, on two months' leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 4, 1905:

Miller, J., Jr., asst.-surgeon, detached from duty with marines on the Isthmus of Panama and ordered to the *Boston*.

McDonnold, P. E., P. A. surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Dispensary, Washington, D. C.

Webb, U. R., asst.-surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department.

Elmore, B., A. A. surgeon, appointed A. A. surgeon from Jan. 24, 1905.

Ross, John W., medical director, retired, detached from duty under the Isthmian Canal Commission.

Smith, R. K., surgeon, detached from the Naval Recruiting Station, San Francisco, resignation accepted, to take effect February 28.

Means, V. C. B., surgeon, detached from the Naval Hospital, Philadelphia, and ordered to duty at the Naval and Marine Recruiting Station, San Francisco.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Feb. 1, 1905:

Brooks, S. D., surgeon, placed on waiting orders effective January 27.

Magruder, G. M., surgeon, granted extension of leave of absence for thirty days from January 22 on account of sickness.

Rosenau, M. J., P. A. surgeon, one day's leave of absence, Jan. 28, 1905, under Paragraph 189 of the Regulations.

Wickes, H. W., P. A. surgeon, granted leave of absence for one day, January 30. To proceed to Philadelphia and report to Surgeon Fairfax Irwin for special temporary duty.

Lavinder, C. H., P. A. surgeon, detailed as inspector of unserviceable property at the Purveying depot, New York.

Gwyn, M. K., P. A. surgeon, granted leave of absence for four months from January 19.

Long, J. D., asst.-surgeon, granted leave of absence for seven days from Dec. 21, 1904, under Paragraph 191 of the Regulations.

Robertson, H. McG., asst.-surgeon, granted leave of absence for six days from February 6.

Frost, Wade H., asst.-surgeon, directed to proceed to Baltimore and report to the medical officer in command for duty and assignment to quarters.

Mullen, E. H., asst.-surgeon, directed to proceed to New York (Stapleton) and report to the medical officer in command for duty and assignment to quarters.

Linley, W. J., A. A. surgeon, Department letter of Jan. 3, 1905, granting leave of absence for thirty days from Jan. 16, 1905, revoked.

Moncure, J. A., A. A. surgeon, granted leave of absence for thirty days from February 1.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, San Francisco, Feb. 1, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. surgeon J. M. Holt, recorder.

APPOINTMENTS.

Dr. Wade H. Frost, of Virginia, commissioned as asst.-surgeon in the Public Health and Marine-Hospital Service.

Dr. Eugene H. Mullen, of Maryland, commissioned as asst.-surgeon in the Public Health and Marine-Hospital Service.

RESIGNATION.

A. A. Surgeon A. C. Fraser resigned, to take effect Jan. 31, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Feb. 3, 1905:

SMALLPOX—UNITED STATES.

Arkansas: Jan. 21, Jacksonville, present; Helena, present; Little Rock, present; Lonoke Co., present; McAlmont, present; North Little Rock, present; Pulaski, present; Sweet Home, present; Ward, present; Wrightsville, present.

Illinois, Jan. 21-28, Chicago, 22 cases, 1 death; Danville, 3 cases

Kansas: Topeka, Jan. 21-28, 1 case.
Massachusetts: Boston, Jan. 21-28, 2 cases.
Mississippi: Gulfport, Jan. 20, 2 cases.
Missouri: St. Louis, Jan. 21-28, 20 cases, 4 deaths.
Ohio: Toledo, Jan. 14-28, 6 cases.
South Carolina: Greenville, Jan. 7-14, 5 cases, 2 deaths.
Tennessee: Jan. 21-28, Memphis, 12 cases, 2 imported; Nashville, 5 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Dec. 1-31, 64 cases.
France: Paris, Jan. 7-14, 21 cases.
Great Britain and Ireland: Jan. 7-14, Belfast, 1 death; Dundee, 1 case; Hull, 6 cases; Leeds, 21 cases; London, 1 case; Manchester, 1 case; Newcastle-on-Tyne, 8 cases; Nottingham, 1 case; South Shields, 6 cases, 1 death; Glasgow, Jan. 13-20, 1 case.
Italy: Palermo, Dec. 24-Jan. 7, 31 cases, 6 deaths.
Norway: Christiania, Jan. 7-14, 10 cases.
Russia: Dec. 31-Jan. 7, Odessa, 2 cases; St. Petersburg, 7 cases, 2 deaths; Warsaw, Nov. 12-19, 1 death.
Spain: Cadiz, Dec. 1-31, 3 deaths.
Straits Settlements: Singapore, Dec. 24-31, 30 deaths.
West Indies: Island of Grenada, Dec. 29-Jan. 11, 4 cases.

YELLOW FEVER.

Mexico: Jan. 15-21, Merida, 1 case, 1 death; Tehuantepec, 1 case.
Panama: Panama, Jan. 25, 1 death.

CHOLERA.

Russia: Erivan, Dec. 21-28, 25 cases, 26 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, Dec. 3-10, 1 case, 1 death

PLAGUE—FOREIGN.

Argentina: Santa Fe, Dec. 27, 1 death.
Australia: Townsville, Dec. 9, 1 case.
British East Africa: Port Florence, Jan. 1, 3 cases.
British South Africa: Durban, Nov. 27-Jan. 3, 1 case, 1 death
Egypt: Dec. 24-31, Port Said, 1 case; Suez, 7 cases, 4 deaths; Tukh, 5 cases, 3 deaths
Russia: Ural Territory, Dec. 26-28, 35 cases, 35 deaths.

Society Proceedings.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Dec. 14, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Differential Diagnosis and Treatment of Acute Pelvic Peritonitis Associated with Gonorrheal Salpingitis.

Dr. Brooke M. Anspach drew attention to the fact that while acute pelvic peritonitis of gonorrheal origin is best treated expectantly during the acute stage, it occasionally bears a close resemblance to acute appendicitis in which the expectant plan of treatment would be dangerous. The diagnosis is based largely on the *mode of onset*, the history of the patient and the presence of gonorrhea. Bimanual palpation in an initial attack of acute pelvic peritonitis due to the gonococcus is often negative because of rigidity of the abdominal walls and the slight structural change found early in these cases. After rest in bed, the use of salines, and hot applications to the abdominal wall, the symptoms subside in from three to ten days. At this time examination is painless, the structural lesions are plainly evident and operation should be performed. In case the expectant plan fails and the patient becomes progressively worse no time should be lost in opening the abdomen.

DISCUSSION.

Dr. Charles P. Noble said increased experience led him to expect less from conservatism in gonorrheal salpingitis than formerly. His views regarding operation in acute gonorrheal peritonitis coincided with Dr. Anspach's. He recalled having operated twice in the acute stage; one was a case of diffuse peritonitis; the other, of a large abscess to the left of the sigmoid. Both patients recovered. One case in which the result of conservatism was a good one was that of a young woman who had acquired gonorrhea, and in whom peritonitis resulted in the formation of an extra-peritoneal abscess. He operated in the acute attack, drained per vaginam, and the patient made an excellent recovery. The woman has since married and borne children. Unless the patient is a young woman, it is Noble's rule to take out both tubes, the uterus and ovaries. He has never seen a patient die of gonorrheal peritonitis.

Dr. John G. Clark said that the reason the gonococcus did not produce general peritonitis was because its chief habitat is the mucous membrane. As soon as the gonococcus leaves the fallopian tubes and enters Douglas' cul-de-sac, the peritonitis is merely toxic, due to the toxins of the gonococcus. He believes it unwise to operate during an attack of gonorrheal peritonitis. Illustrative of this he cited a case in which the symptoms had increased in severity and the question arose whether there was simply a gonorrheal peritonitis or involvement of the tubes and ovaries. Operation was done, the tubes and uterus being removed, and the ovaries left. Subsequently the woman developed a large abscess involving the ovary. Opening of the incision and further drainage were necessary. He emphasized the necessity of a close differential diagnosis and the importance of knowing when to wait until the acute attack had passed, and when not to wait but to operate for a more lethal type of infection. Dr. Clark believes in conserving all tissue possible, because the individual who usually contracts gonorrhea is a young woman. He feels that the conservative policy in some instances works splendidly, but in the majority of cases, badly.

Dr. Edward Martin said that his experience in this class of cases in recent years had been only as long as was requisite to transfer the patient to the hands of a competent gynecologist, but that in earlier days he had seen many such cases which had made a prompt recovery under conservative treatment of the acute attack.

The Significance of Abulic Symptoms in Cases of Mental Disease.

Dr. Robert H. Chase, superintendent of the Friends' Asylum for the Insane, Frankford, Philadelphia, stated that besides hysteria where it strongly prevails, abulia is common in all forms of nervous and mental disease in which the chief characteristic is a weakening or exhaustion of the mental processes. It is particularly conspicuous in melancholia, dementia præcox, and in the depressive types of general paresis; in some conditions of neurasthenia and psychasthenia; in the intoxication of opium and alcohol, and in the retardation of manic-depressive insanity. He divides it into systematized, localized and general abulia. Under the systematized he gives the abulia of sleep. Among the forms of general abulia was given the intellectual type, in which the trouble lies in a defect of the attention. He spoke of the rôle that attention played in the normal mechanism of the mind, and under the term aprosexia he gave its various defects in disease.

The Advisability of a National Department of Public Health and a Medical Cabinet Officer.

Dr. T. H. Evans said this was suggested by the late Dr. William Pepper. He favors it as a means to centralize and to render more effective the many interests of the country that are medical. The supervision of education of children, so as to suit individual tastes, needs and abilities, is indicated. Physicians ought to control all matters which concern the physiologic welfare of the citizen. The care of criminals, once apprehended by the law, belongs properly to medicine. Colonies for mental and moral degenerates, if established, would materially reduce crime. The physical defects of children should be understood as productive of later immorality, or conducive to it, if suitable education does not intervene. Education and licensing of practitioners of medicine and surgery belong to a central office, whose executive head should have a place in the cabinet of the President.

DISCUSSION.

Dr. Edward Martin thought that the question of education should be a matter of state control. In regard to criminals, imprisonment is not so much a punishment as it is a protection for the rest of the community. Too much leniency has been allowed criminals on a basis of mental defect. The idea of centralization is applicable to the subjects of sanitation and prophylaxis, particularly against contagious diseases.

Dr. Charles K. Mills believes that much could be accomplished by the establishment of a central health department of some description. He would be very glad to see the medical profession represented in the cabinet and believed much good might come from such movement. It might, however, be better if a department of science were created with bureaus of different kinds, including a national bureau of health which would unify methods concerning matters of health in all parts of the country. With such a national organization much might be accomplished in matters of quarantine, the pollution of rivers, the registration and examination of physicians, and such questions as physicians have the first right to consider. Those who have committed crime, if their mental and physical health is a matter of question, should receive that attention which is often not given them both before and after trial and after conviction. Such questions as the care of the insane, the care of epileptics, the commission of crime by the young, would receive more humane attention if there were some method of regulating their consideration, and if that method were, in part at least, national and centralized.

Dr. William S. Wadsworth said that questions which should come under the head of such a national executive department are the adulteration of foods, the study of sewage, the protection of life on railroads and in factories, child labor, the importation of hides and such materials, the quality of drugs and patent medicines. He regards as highly desirable the presence of a medical man in the cabinet.

Regular Meeting, held Dec. 28, 1904, at 8:30 P. M.

The First Vice-President, Dr. B. Franklin Stahl, in the Chair.

Food Preservatives and Food Adulteration.

Dr. H. W. Wiley, chief of the Bureau of Chemistry of the United States Department of Agriculture, said that the necessity of preserving food in some way had been recognized since man emerged from his savage state. The development of the science of chemistry had placed in the hands of the manufacturer the means of preserving food and the means of matching foods in tints and colors. He believes the education of the public in regard to artificial coloring of foods to be quite as effective as legislation. After Feb. 2, 1905, the food law will require that all food products entering this country artificially colored should bear a label so stating. The material for coloring need not be declared, except when sulphate of copper is used. His advice to food makers is to cease using colors, and especially if the coloring is under suspicion of any kind. Concerning antiseptics he believes that there never should be an antiseptic admitted to foods, except when absolutely necessary, or when ordered by the consumer. There is, he thinks, a legitimate use for sulphurous acid, as employed in the fumigation of dried fruits, and the burning of the sulphur match in wine barrels, but when it is used for preserving a poor wine, and for putting on the market a new wine before it is ripened, its use is unpardonable.

Defects in Pennsylvania Food Legislation.

Mr. W. W. Smithers said that the laws on this subject now being enforced in Pennsylvania are not the expression of the wishes of the people, and that they result in unnecessary interference with manufacturers and merchants. He advocated the repeal of the Act of 1895 and the enactment of laws based on the preservation of health and protection against fraud. He stated that the office of dairy and food commissioner is unconstitutional; that the existing food statutes are imperfect and open to many just complaints, and that every effort should be made to secure reasonable and adequate legislation on this important subject.

The Evaluation of Evidence as to the Pharmacologic Action of Food Preservatives.

Dr. Thomas Luther Coley stated that as an economic principle it is apparent that a nation of eighty million people could not be fed from the farm to the table or from the local abattoir to the table. There arises the complex problem of transportation of food in an edible condition. The use of chemical preservatives therefore becomes a necessity. Dr. Coley went over the grounds on which these are used, and reviewed the chief objections against their use. The dangers arising from reputably prepared food to which preservatives have been added, he said, are as nothing compared to the dangers from foods having undergone putrefactive changes. A problem of such importance should be settled by medical men and not by a lay jury in courts of law. Legislative enactments should not be made in advance of scientific knowledge. There must be disabuse of the mind of the criminality of intent on the part of reputable manufacturers and a sharp line should be drawn between adulteration and food preservation. The question to be decided is the action of very minute doses of food preservatives over a protracted period. In order to illustrate the faulty interpretations from research work undertaken on a wrong basis, Dr. Coley cited the papers of Pfeiffer, Kionka and Harrington dealing with sulphite of soda. In all these studies the amount of the drug used was higher than that employed for preservative purposes; too great quantities of meat were fed to the animals, and no variety of diet was allowed. Further, the animals were confined, of questionable health in the beginning of the experiments, and the deductions of these authors were not warranted so far as the use of sulphite of soda as a food preservative is concerned.

BUFFALO ACADEMY OF MEDICINE.

Regular Meeting of the Medical Section, held Jan. 10, 1905.

Dr. Allen A. Jones, Presiding.

The Treatment of Pneumonia.

Dr. DeLancey Rochester based his remarks on a series of 201 cases, with 16 deaths, a mortality of 8 per cent. Twenty-five of these cases were under 20 years of age; mortality, 4 per cent. Between 20 and 50, 115 cases, with 6 deaths; over 50, 61 cases, with 9 deaths. Rochester counseled against the early use of digitalis for the purpose of aborting the disease, because once the chill has occurred the disease is well established; and, furthermore, digitalis does not overcome the toxemia. In his opinion the Brand bath meets few of the indications. He does not use anti-pneumococcic serum because as manufactured in this country it is not reliable, and its cost is so high as to be prohibitive, in many cases. Creosote and guaiacol, used in large amounts by mouth and as an inhalation, are toxic and irritate the kidney, hence their use as stimulating diuretics is contraindicated. The nutrition is sustained by milk, raw eggs, plenty of fresh air and sunlight, and boiled or sterilized water. The toxemia is relieved by diuresis—induced by the administration of large amounts of milk and sterilized water; diaphoresis—hot mustard footbaths every four hours; catharsis—calomel followed by a saturated solution of Epsom salts. The mouth should be cleansed often by an antiseptic wash. The heart should be examined as often and as thoroughly as the lungs. It should be stimulated sufficiently early in the disease. For this purpose Rochester recommends strychnin—two milligrams every four hours, increased, if necessary, to four milligrams, every two hours; brandy—because of the ether it contains, and the carbonate of ammonia. To combat the pulmonary congestion, leeches and wet or dry cups are applied to the affected lung. Dry cups should be applied every four to six hours and kept on for one half hour each time. Rochester has been able to verify, post mortem, the value of dry cupping. He condemns the use of poultices, ice locally, and the old pneumonia jackets. He uses a light woolen jacket. The application of leeches and the ice bag over the precordium often will prevent a complicating pericarditis. Endocarditis may be combated by the hypodermic administration of nuclein. For the accompanying pleurisy, dry cupping, codein or morphin is given. If there is a pleural effusion, paracentesis is indicated, and empyema demands surgical intervention. In meningitis leeches are applied, sodium bromid is given and lumbar puncture may be done. With an enlarged right heart, frequent small pulse, arrhythmia, dyspnea and cyanosis the withdrawal of 10 to 16 ounces of blood from the median vein of the forearm will yield results in cases which other would prove fatal. In severe cases, hypodermoclysis is also of value. For prevention, the stools and urine should be disinfected; the mouth washed, frequently with an antiseptic solution and the sputum destroyed.

DISCUSSION.

Dr. Tartaro said he used the antipneumococcus serum prepared by Paul of Naples in three cases, and believes it to be of value. He said that the reason why the profession in this country has not had the good results reported by European physicians is because the serum manufactured here is not a good one.

Dr. Van Peyma strongly advocated plenty of fresh air.

Dr. Thoma saw no reason why strychnin should be used as a heart stimulant instead of camphor.

Dr. DeWitt Sherman prefers nitroglycerin because of its capillary dilating effect.

Dr. Blaauw expressed himself as being a believer in the efficacy of antipneumococcus serum.

Dr. J. Ullman stated that he had often noticed the excessive bleeding following the application of leeches. The salivary gland of the leech secretes a substance which prevents the coagulation of the blood at the site of the application of the leech, and it is possible that the beneficial result obtained from such applications is, in part, to be accounted for by the injection into the blood of an anti-agglutinating substance. The Germans have separated a leech extract by crushing the heads of the animals and making an emulsion in glycerin. The good results noted in normal saline hypodermoclysis may be explained by the anti-agglutinating effect of sodium chlorid.

Dr. Allen Jones deprecated the use of antipyretics because they crippled the heart by their depressant action.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(Continued from page 156.)

WÜRZBURG.

One of the most deservedly celebrated of the institutions of learning in Germany is the Royal Julius Maximilian University of Würzburg. Especially in medicine and in the natural sciences has this university a fair fame. It would be difficult to conceive of a better place for quiet work, for Würzburg is a small city of less than 80,000 inhabitants, beautifully situated among the vineyards in the valley of the Main, and the medical and philosophical faculties have for years included many of the most distinguished teachers and investigators in Germany. It was here that Emil Fischer did some of his best work on the synthesis of the sugars; it was in the physical laboratory nearby that Roentgen, in the course of his everyday work and in the middle of his otherwise relatively uneventful life, suddenly made that happy observation which set the world agog. The venerable v. Kölliker, who still lives in Würzburg, has given us an account in his autobiography of his own activities there. Boveri, the zoologist, has a world-wide fame; Medicus, Tafel and Manchot are names familiar to every investigating chemist.

The medical faculty is fortunate in having excellent laboratory buildings, beautifully situated on the Pleicher Ring and admirable clinical facilities in the large, well-organized, richly endowed Julius Hospital. Of the 1,400 students in attendance at the university last year, 461 were medical. The subjects of the first two years are extremely well taught, anatomy now under Stöhr's, physiology under v. Frey's, pathology under v. Rindfleisch's and pharmacology under Kunkel's direction.

Professor Stöhr, so well known to us in America through the translation of his admirable text-book, was called to Würzburg from Zürich and inherited the large modern Anatomical Institute from v. Kölliker. When an American enters the huge laboratories built for anatomy in Germany and in Austria, with their capacious and handsomely decorated entrance halls, their wide corridors, roomy amphitheaters, well-lighted dissecting rooms, elaborately organized study rooms and liberally outfitted research rooms for professors, assistants and advanced students, he realizes forcibly the advantages which accrue to the science in a country where for a long time it has been in the hands of men who have devoted themselves exclusively to it, and where it is studied for its own sake as well as taught to medical students as a foundation for their subsequent studies. In single institutions in America anatomy has been similarly recognized, living professorships have been established, adequate laboratories have been built, appropriations for staff and equipment have been made and work of the highest order is being carried on—but, in general, America has yet a long way to go in order to put this fundamental science on a level with that of continental Europe. But American universities and medical faculties seem to be wonderfully alive to the importance and needs of anatomy, and there seems every reason to believe that the excellent example set by a few of the leading institutions will soon be followed by the rank and file. And when this will have taken place, the European anatomists declare that they feel that they will be compelled to look to their laurels.

Stöhr's laboratory, so far as anatomic teaching (aside from research) is concerned, is one of the best organized I have seen. Here, if anywhere, one finds "anatomy made easy." Everything one can think of is done to help the student in his acquisition of the facts of the gross and the microscopic structure of the body. In the dissecting room, in the lectures, in the histologic laboratory, in the study-room and in the museum, no effort is spared that can contribute to the speedy, easy and accurate grasp of the multitudinous form relations which confront the beginning medical student in his study of the human cadaver. The leading principle with Stöhr (as with many modern teachers of anatomy), is that the student shall actually see as many structures as possible himself. And so he demonstrates *ad maximum*. In the lectures, the structures isolated by prosectors, are shown to the class; on the board careful pictures of the more important relations are drawn; on the walls are charts copied from the most accurate illustrations of current atlases. In the study room from day to day special demonstrations are made; special dissections or models of the same are exhibited, each part being ingeniously labelled for the occasion so that confusion of structures or names is scarcely possible; even the Steger models are placed beside life-size photographs of the same, each structure in the photographs being properly characterized by inscription in order to facilitate its recognition in the model.

A similar process of elaborate help is followed in the histologic instruction. With every section given out to the class for study a special demonstration is associated; in this demonstration a slide is placed under the microscope and beside it is a camera lucida drawing of the same field in which each structure has its appropriate legend. These drawings and legends are all controlled so that the student need not doubt their accuracy. In this way a difficulty is obviated—one which every teacher of histology who has had to deal with a large group of young assistants, has more than once keenly felt—I mean that of false instruction. Only too often does one find that a student who has applied to a young instructor for guidance has been led along a wrong path. The conditions in anatomic laboratories are such that young men with insufficient training have to be used as class-room instructors. Nothing is more discouraging to a student, or more likely to lead him to think a subject unimportant, than to find that the man who has been set to teach him can not tell the periphery of a lobule of the liver from its center, or the tractus solitarius from the descending root of the vestibular nerve. Much can be done to avoid the evil by systematic "instruction of the instructors" before the class meets. The real remedy is to furnish better trained instructors, and this will be possible when more money is available, when more men are drawn to the more purely scientific careers in medicine, and when the conditions become such that it will be possible to draw a sufficient number of instructors from a class of men who, beside having done the "required" work for medicine, have had a prolonged course in "non-required" advanced work. One of the things most needed now in American laboratories is provision for advanced anatomic work. The organization of a number of courses suited to those who, having taken the regular courses in anatomy in the medical school, desire to develop themselves more perfectly in the subject, would be hailed with gratitude by many. It should be possible for a gynecologist-in-training, for example, to find a well-planned advanced course on the anatomy of the organs of the female pelvis. Courses on the anatomy of the eye, of the ear, of the nose and throat, also might be especially organized. Such courses are already offered in a few institutions, it is true; but might they not advantageously be introduced in many more places? There is a field also for the working out of advanced courses in general anatomy and histology in which the student could repeat some of the work already done by great anatomic investigators. If anatomic curricula were thus enriched, marked progress ought to be made and real anatomic research should quickly be forwarded —much more rapidly, perhaps, than by setting immature intelligences at so-called "original work."

I have spoken of the immense amount of help given to the students in the department of anatomy at Würzburg. In connection with this and similarly organized laboratories it may be asked: "Is not too much help given? Is there not danger of 'spoon-feeding' there? Is it not true that it is only that which a student acquires with a certain amount of difficulty and personal exertion which he will retain? Does not such a method of instruction make too great demands on the time and energies of the teaching staff? Is it not possible that the research work of the professor and his assistants will suffer in laboratories where teaching is so highly developed?" These are questions which can scarcely be satisfactorily answered offhand; that they should be asked, it must be admitted, is natural. So much depends on the quality of the students to be taught and on the character and ability of the teaching staff, especially of the head of the department in each instance, that no answer can be given which would hold generally. It is probably safe to say that students can not be helped too much, provided they are always helped in the right way, and it is nearly always the right way when they are helped to learn how to help themselves. The sea of anatomy—if I may be permitted to make a time-worn figure do service once again—is too wide and the time for its exploration too short for the student's boat to be permitted to drift aimlessly about on its surface; the teacher must stand beside the student at the helm and teach him how to guide it; he must accompany him into the more important harbors, pointing out to him the best modes of approach, the channels which experience has proved to be the shortest and safest, the landmarks which serve as guides and the hidden dangers which threaten the passage of the novice. It is his duty as quickly as possible to make the apprentice so familiar with the apparatus of the ship, with the use of the charts and the books of other navigators that he may by himself, unattended by an experienced seaman, visit any known anatomic port. He will see that the learner does actually visit and observe all those more important harbors with which every well-trained medical man must perforce be familiar, and he will encourage him to explore thoroughly even the very smallest landing places in some selected region of the body which may especially interest him. For the study of the charts and the descriptions of the voyages of others alone will never make a navigator; the most complete familiarity with anatomic pictures and the most thorough learning by heart of anatomic descriptions can never take the place of personal work in the dissecting room and in the histologic laboratory. If in his training the student learns how many different kinds of vessels may be employed and how variously each may be worked, if he practices charting his different voyages for himself and becomes skilled in the keeping of a brief and accurate log, it should not take him long to acquire that degree of knowledge and skill which will afterwards be sufficient for him in his work. The majority of medical students will never in their subsequent careers make journeys in anatomy outside of charted waters; indeed, practical medicine and surgery has commerce as yet with only a small fraction of the termini to be found on the anatomist's maps, though every day some terminus, hitherto neglected, becomes important. But the good anatomic captain will see to it that his pupil knows which waters are charted and which are not; to impress the facts on the learner he will occasionally make a short trip with him into an unknown bay, feeling his way continuously as he goes, sounding here and calculating there, filling in a new area on the chart or correcting an old one; now and then, his heart will be gladdened when an adventurous spirit turns up in the crew, who, in love with the sailor's life, and not satisfied with repeating the voyages made by others, is fired with the ambition to travel on and on into the unknown—a new anatomist may develop with the strength and courage to lay out his own course.

Professor Stöhr is ably supported by two associate professors, Oskar Schultze and Johannes Sobotta, both of whom are known to American medical men, the latter through his embryologic studies and his atlas of anatomy just published in Lehmann's series. Though Schultze's studies, notably those on the nature and origin of the peripheral nerves, have apparently led him temporarily into false paths, his work as a whole is most promising, and he is generally regarded as one of the very best of the younger school of German anatomists. Sobotta's new atlas, it must be admitted, is somewhat disappointing; moreover, it was scarcely needed, the field being sufficiently filled, for the present at least, by the magnificent anatomic atlases of Spalteholz and Toldt. Men with investigative power are so uncommon that the spending of their time in the unnecessary multiplication of text-books is deplorable.

The department of physiology in Würzburg is now one of the strongest in the institution. Under the direction of von Frey, so long associated with the distinguished Ludwig in Leipzig, this is no surprise. A most painstaking, reliable investigator himself, von Frey has understood how to attract to his laboratory a number of other investigators, among them men who stand in the front rank in contemporary physiologic research. The physiology building is excellently suited to its purpose; the equipment is adequate and the yearly budget relatively liberal. The teaching is carried on by means of lectures and laboratory work, the latter being made a main feature, Professor von Frey having been one of the first to introduce into Germany the admirable methods of practical physiologic instruction which had their origin in the medical schools connected with American universities, and which, among others, Porter of Harvard and Howell of Johns Hopkins have done much to develop and to systematize. Von Frey himself has a leaning toward mathematics and physics; excellently trained in these basal sciences himself, his original researches have enriched physiologic knowledge mainly along physical lines. I need only refer to his exquisitely delicate investigations into the nature of the functions of the sense organs of the skin, including his establishment of the spatial independence of the organs underlying the sensation of pain from those underlying the sensation of touch, and to his many contributions to the methodical and graphic study of the circulatory apparatus, to recall to American physicians the importance of his work.

Mention was made above of the high grade of physiologic investigators who have been attracted to v. Frey's laboratory. The most brilliant, perhaps, of these is the young Englishman, Overton, who, though academic positions have been offered him, prefers to keep himself unentangled from teaching responsibilities in order to devote his undivided attention to the labor of original research. His studies of the mode and action of narcotics, begun with Hans Meyer, the excellent pharmacologist at Marburg, have been most far-reaching in their results. No better example, perhaps, could be brought forward of how work begun on a specific problem in a limited field may suddenly widen and permit of unexpectedly broad applications. Meyer and Overton began by asking themselves, How do narcotics act? The researches undertaken soon led to the putting of the more general question, How do substances of the most various sorts enter the cells of the body? Any substance, to act as a narcotic, must be able to enter the cells. Overton found that water can enter and leave cells quickly, and that of the organic substances, those penetrate the cells most quickly which, besides being soluble in water, are easily soluble in fats, such as the various fatty oils and certain allied substances like cholesterin, lecithin and protagon. Since the latter substances are known to occur very generally in animal and vegetable cells, it occurred to Overton that it is their presence in the cell which in large part determines the behavior of the cell as regards the reception into it of substances dissolved in the solution bathing it. If this were true, then the distribution of the substance in solution between the lymph on the one hand and the cell on the other will depend on the relation of its solubility in the water of the lymph to that in the fat-like substances in the cell. If the solubility of the substance in the cell fats or so-called "lipoids," be great, it will accumulate there and alter the function of the cell; if it be insoluble in the cell fats but easily soluble in water, it will not easily enter the cell.

An examination of narcotics showed that they could be divided into two great groups, (a) those that are chemically neither acids nor bases, but so-called "indifferent" substances, and (b) basic substances. To the first group, according to Overton's estimate, about one-half of all organic substances belong; the group also includes carbon dioxid, carbon bisulphid and nitrous oxid. When the concentration of the solution of a member of the group sufficient to cause narcosis of a given group of cells has been established, it is found that the same concentration of solution will generally exercise a similar narcotic effect on cell groups of the most various kinds. Further, the narcosis is temporary; when cells are removed from the narcotizing solution and placed in normal lymph or salt solution the narcotic effects quickly disappear and the normal function is restored; only when the concentration has been too great or the action too prolonged is the cell permanently injured.

To the second group of narcotics belong the organic bases and those salt-like compounds of them which on aqueous solution undergo hydrolytic cleavage, with reformation of the base. Ammonia belongs here also, but not solutions of sodium or potassium hydroxid. The nature of the cell membrane, its holding in lipoid substances, determines apparently its impermeability to dissolved electrolytes on the one hand and its easy permeability by substances soluble in fat on the other. The action of the organic bases of this second group of narcotics is wholly different from that of the substances of the first group in that the concentrations effectively narcotic for one group of cells may be totally ineffective for a cell group of a different kind, the concentrations necessary varying in some instances in the proportions of 1 to 10. Further, the action is not temporary, but prolonged, even when the cells are placed again in normal lymph or salt solution. And again, the narcotic effect does not take place so quickly after the penetration of the substance into the cell; it appears more slowly and tends to be progressive in its intensity. The conclusion is drawn that the basic narcotics in all probability form tolerably firm chemical compounds inside the cells with certain of the cell constituents. Though they can penetrate the cells tolerably quickly on account of their solubility in lipoids, they are not easy to remove from the cells, once inside. This, perhaps, explains how it is that so small a quantity as 1/3 of a milligram (1/200 grain) of curarin per kilo of rabbit, as Böhm showed, will suffice by its accumulation in the motor end plates to totally paralyze the skeletal muscles of the body.

The action of the so-called indifferent narcotics appears, on the other hand, to be physical rather than chemical. This view is supported by their lack of specificity of effect, by the relative chemical inertness of most of the narcotics concerned and by the speedy recovery of the cell when its normal environment is restored. The richer a cell variety is in contained fats, the more narcotic it will take up. This explains, perhaps, the affinity of such narcotics for nervous tissues, especially for medullated nerve fibers.

The opportunities for the application of the doctrine to the practical experience of the physician are obvious. One recalls at once the relatively large amount of chloroform or ether an obese patient may require before narcosis is established; with great masses of adipose tissue in the skin and omentum, each fat cell dissolving out of the lymph its store of the circulating anesthetic, a much larger amount of the substance may have to be administered before the effectively narcotic concentration in the lipoids of the nerve cells is attained, than would be necessary in an emaciated patient, where, as is well known, the nerve cells are among the last to yield up their store of fat. It must ever be kept in mind that solubility in fat is not the only factor concerned in connection with the behavior of the indifferent narcotics; just as important is the coefficient of distribution of the substance between lipoid and water. If this coefficient, lipoid water, is great, then the narcotic will penetrate the cell quickly; if it is small, only slowly. The remarkable results of Overton's studies thus far make us look forward with eagerness to his further publications. He is now engaged on a study of the phenomena of imbibition, and we may, therefore, expect before long to have new light thrown on this process, so obscure and yet so important for the function of cells.

Another investigator in v. Frey's laboratory whose results merit close attention is Gurber. His studies of crystallized serum albumin from the horse have assumed especial interest now that chemists as well as physiologists are beginning to concentrate their minds on the problems connected with the nature of the proteid substances.

A new text-book of physiology by Professor v. Frey has just been published.[1] I am wondering if it might not be a good rule for every medical man, no matter what his special branch of work may be, to read carefully every few years the newest and best text-books of physiology as they come out. Physiology stands closer, perhaps, than any other of the so-called fundamental sciences to the practicing physician, to whom its relation is that of anatomy to the surgeon. How many medical men greeted with delight and read with instruction Howell's American Text-Book, Stewart's Physiology, Loeb's Lectures and Schaefer's English Text-Book of Physiology, as they appeared! These books gave us renewed stimulus; in a connected fashion we were able to get a grasp of the progress science had made since our student days. We went back to our daily work with clearer ideas, with a new insight into the processes which go on in those bodies we have to treat. A rational therapy of disturbed function is impossible when the normal activities are not understood; the more sharply the processes which go on in health are stamped on our minds, the less likely are we to go astray in combating disease. This new book of von Frey's can be warmly recommended as a guide for the better class of medical students; as a succinct, interesting epitome of the science as it stands to-day, it should be of the greatest service to the busy practitioner. I wish it could be translated into English.

In less than 400 pages von Frey has brought together the more salient features of modern vertebrate physiology. I say vertebrate physiology, for von Frey is a greater friend of the physiology of higher animals than of that of the protozoa. The two schools of physiologists appear to have difficulty in understanding and fully appreciating one another. But each school has its brilliant representatives, and we as medical men probably do best to neglect the strife of the schools and to assimilate to our own uses the contributions of each. Some day a higher, more philosophical physiology will unify the facts of the science. I have been reading von Frey's book in the train in those long, lazy intervals between stopping places, so characteristic of European railways. Typical of the book is the opening chapter, which deals at once with the application of the doctrines of the conservation of energy and of mass to the processes which go on in living beings. The student has his physiology presented directly as a continuation, with utilization, of his studies in chemistry, physics and anatomy. The dynamic conception of the body is impressed from the beginning. The modernity of the presentation is made obvious by the use of the cm., gr., sec. system of units; the systematic application of the dyne, the erg and the other members of this system of units to all scientific measurements is now a matter of duty; medicine has been too long blameworthy in this regard.

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[1] Von Frey, [illegible] Vorlesungen über Physiologie, Berlin [illegible]), 1904, [illegible] 1-392.

The original research of von Frey on the circulatory apparatus would lead us to expect that the sections of the book dealing with the blood, the work of the heart and the movement of the blood and lymph will be particularly strong and a perusal of them shows that the expectation is not disappointed. The series of beautiful experiments which physiology owes to Ludwig and his pupils are here successively presented and the results of subsequent investigators are carefully epitomized. The newer studies on the heart muscle and on the action of the valves of the heart can not fail to interest every clinician. The graphic methods for recording the evidences of activity in the various parts of the heart have undergone marked improvement of late. Especially valuable in this connection are the experiments of Einthoven, who registers the heart sounds synchronously with the apex beat. A whole series of new facts and a valuable critique of the older observations have resulted. Still more interesting and probably capable of greater application clinically is the method of studying the activity of the living heart by measuring the electric currents which originate at each beat. The capillary electrometer is the instrument used and the registered curve is known as the electrokardiogram. Some of our better American physiologists now give instruction in the use of the instrument in their practical courses, and it may be hoped that before long it will be more extensively employed at the bedside, especially as a method of correction of the original curves obtained has been introduced which permits one to eliminate the differences between individual instruments.

The section on the study of the pulse is largely an epitome of von Frey's former book on the subject; the three pulse-measuring instruments — sphygmograph, tachograph and sphygmomanometer—for the more accurate valuation of the various characters of the beat, are carefully described; von Frey's own contributions here to the improvement of the instruments are of high worth. The chapter on the vascular tonus will be of especial interest to medical men, now that clinicians are becoming more and more convinced of the vast importance of the condition of the small vessels at the periphery in all cases of disturbance of the circulatory apparatus. The chapter on this subject has been written with great care; the most important facts in a huge literature are given in résumé, and well-selected bibliographic references point the student to original sources of information. The fifth part of von Frey's book, that dealing with respiration, includes an interesting account of the studies of Bohr, who has, as is well known, revolutionized physiologic ideas in that domain during the past few years. Bohr has studied more exactly than had been done before the mode of combination of the oxygen in the circulating blood, and he and his pupils have shown that a fixed relation between the amount of hemoglobin present and the combined oxygen does not exist. His experiments also indicate that the hemoglobin of the circulating blood is a substance, the capacity of which for taking up oxygen is variable within certain limits which are as yet not fully understood. His studies of the compound which carbon dioxid forms with hemoglobin, the so-called carbohemoglobin, have shown that its formation is independent of the simultaneous presence of oxygen, and leads to no alteration of color that can be recognized either by the naked eye or the spectroscope; in all probability, therefore, the carbon dioxid unites with a totally different part of the hemoglobin molecule than that with which the oxygen combines. No less important, perhaps, are the studies of Bohr and Henriques on "internal respiration," through which they have been able to bring forward new facts concerning the exchange of oxygen and carbon dioxid between the blood and the tissues, and especially concerning the exact localization of the combustion processes. The discussion of the significance of the so-called "respiratory quotient" will be welcomed by many, for the clinicians who busy themselves with the study of diseases in which metabolism is markedly disturbed tend more and more to help themselves by calling to their aid the apparatus of Zuntz, or, better, that of Jaquet. It would seem a pity that so many metabolism experiments have had to be carried on, especially in clinical work, in a one-sided way. The measuring of the gas exchange alone suffices no more than a determination of the intake and output of nitrogen alone; but the great practical difficulty of comprehensive metabolic studies and the limited number of adequately trained assistants for the work probably explains the slowness with which progress is made along these lines. It must be pleasing to Americans to realize that thus far the experiments of Atwater are the best that have been made.

The sections of the book dealing with the physiology of digestion, absorption and assimilation are excellent. They could have been written only by one who has followed closely and with understanding the vast number of original researches dealing with the histology of the digestive and absorptive organs, the nature and action of ferments, and the organic and physical chemistry of the decomposition and synthesis of the proteid and carbohydrate substances. The more peculiarly biologic experiments, too, have been fully valued; the researches of Pawlow in Russia and of Cannon in Boston are given due prominence. Knowledge is moving with automobile speed in these districts; it is hard for a scientist to keep pace with it even in a "runabout;" he who will be abreast of everything must, of necessity, ride a "big machine."

The seventh and eighth parts of the book deal with the urine, with metabolism in general and with the maintenance of the body temperature; the remainder of the volume is devoted to a discussion of the functions of the muscles and nerves. Where all is good, it seems invidious to select any part for especial praise; I must state, however, that nowhere else to my knowledge is a better description given in so small a space of the functions of the organs of general and special sense. The central nervous system is dismissed, on the other hand, with a relatively meager account, a behavior for which, however, we can scarcely blame a physiologist when we recall how much of what is ordinarily given on the brain in text-books of physiology is really not physiology but anatomy. An American is somewhat surprised also to find no chapter in the book on reproduction; in Germany this subject is left to the text-books on anatomy. I have written chiefly, as will be seen, of the merits of the book, which seem to me unusual; it is a book which must appeal to those whose wish it is to see medicine brought more and more into accord with the exact sciences. But the book is not devoid of faults; the account given of the white blood corpuscles is defective and should be improved in another edition; there is no discussion of the theory of katalysis in connection with the description of the activities of enzymes, an omission which many will find hard to forgive, especially since the theory as put forward by Ostwald stimulates to important experimental work; and there are misprints here and there which mar the book. I miss, too, any reference to the important experiments of Stoklasa on the relation between the process of "internal respiration" and that of alcoholic fermentation. But these faults are such as can be easily corrected; the book as a whole is excellent and worthy of repeated reading and careful abstracting.

It is interesting to look over the list of names of younger men cited in the book. The names of Germany's former physiologists form a galaxy, in which Brücke, DuBois Reymond, Helmholtz, Ludwig and Weber were among the most illustrious persons. Engelmann, Gad, Hering, Hermann, Hürthle, von Kries, Munk, Pflüger, Rosenthal and Voit are living, but can no longer be regarded as young men. Now we hear of Bethe, Bohr, O. Cohnheim, Cremer, Ewald, Einthoven, O. Franck, von Frey, Tucke, von Grützner, Gürber, Hofman, Kossel, Overton, Schulz, Siegfried, Steinbach and Verworn. Some of these are really not German; Bohr is a professor in Denmark; Einthoven is a professor in Holland; Overton is an Englishman working in Germany. Will the German physiologists of to-day rank with their predecessors, is a question which many are asking. The answer must be left to the future.

In Würzburg, von Leube is the professor of internal medicine. He is everywhere regarded as one of the best diagnosticians in Germany and his text-book on diagnosis has long been used and highly prized by American physicians who read German. I note that the last edition of this useful book has been translated into English by Dr. Salinger; it is certainly matter for congratulation that its contents have now been made generally accessible to English and American readers.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pneumonia.

The specific organism which is the cause of pneumonia, the *Micrococcus lanceolatus*, can be found in any part of the respiratory passages in normal individuals. In pathologic conditions it finds its way into the blood of patients and in this way gives rise to various complications. Unless the pneumococci, therefore, are found in the sputum in pure culture their presence is of no diagnostic value. In many cases of lobar pneumonia other organisms are present, such as the streptococcus and Eberth's bacillus. The bacillus of influenza may be the etiologic factor in pneumonia; alone it never causes a true lobar pneumonia, but a lobular pneumonia which may be confined to one lobe as shown on autopsy.

PROPHYLAXIS.

The treatment of pneumonia may be divided into the prophylactic treatment and the treatment of the attack. The prophylaxis as recommended in the bulletin of the Department of Health, Chicago, consists in:

1. Destruction of the sputa.
2. Prevention of soiling the patient's surroundings and thorough disinfection of the room afterward.
3. Thorough ventilation.

GENERAL TREATMENT.

H. P. Loomis, in the Practical Medicine Series of Year Books, gives an account of the following general line of treatment of pneumonia in four of the leading hospitals of New York:

Calomel is first given in small doses, often repeated, followed by a saline in the morning. This is repeated during the course of the disease if necessary.

Flaxseed poultices are applied as local measures. In some cases the pneumonia jacket is used. The treatment of the fever varies. In some cases the tub bath is used at a temperature of 103 F. and over, when the patients are alcoholics or are delirious, and they are sponged regularly when the temperature is 102 F. For the very severe pain poultices are applied or a hypodermic injection of morphin is given if necessary.

For the insomnia, codein, trional or bromids are employed, and for cardiac weakness alcohol, strychnia and digitalis. Alcohol is administered in doses of one dram (4.00) at intervals of from one to four hours, according to indications.

Strychnia is used for two indications: 1. As a heart stimulant secondary to whisky. 2. Where there is evidence of pulmonary edema and cyanosis. It is given hypodermically in doses of grain 1/20 (.003) each. Digitalis is given in cases that do not respond to whisky and strychnia.

Although statistics have been gathered from various sources to prove the value of this or that drug as a specific in pneumonia the fact must not be lost sight of that pneumonia is a self-limited disease, and terminates suddenly in recovery. The reasoning, therefore, is not good that such results are due to certain specific lines of treatment, as statistics may show. But there are a few preparations which have proved so universally of value in the hands of competent observers that they are worthy of mention, among these may be mentioned quinin, creosote carbonate, digitalis, calomel and alcohol.

Rochester, in *Med. News*, Feb. 13, 1904, states that the present antitoxic sera are of no value in the treatment of pneumonia, and until a reliable antitoxin is obtained the treatment must continue along the lines of elimination and support of the patient. Large amounts of pure water should be given to increase the elimination. The eliminative action of the liver and bowels must be kept up through the vigorous use of calomel and salts. The skin must promote elimination through sweats induced by external heat. If indicated, the work on the right heart may be lessened by blood-letting. Stimulation to the heart may be obtained by administering strychnin, alcohol, ammonium carbonate, and, in suitable cases, the subcutaneous injection of the normal saline solution and local treatment applied by leeching and dry or wet cupping.

Sweating may be induced by the hot mustard footbath given in bed without any disturbance to the patient. The patient, in a nude condition, lies between blankets with his knees flexed, his feet in the tub which has been placed under the blanket, the long axis being in the line of the patient's body and legs; another blanket passes from under the tub up over the end and over the knees of the patient. From two to five blankets or a fewer number of blankets and a rubber sheet are then placed over the patient, extending from head to foot and tucked around the patient. The tub is at first filled half full of hot water, in which a heaping tablespoonful of mustard has been dissolved and hot water added as indicated. The bath is kept up for from thirty to forty-five minutes, according to the amount of sweating produced.

During the bath, cold cloths wrung out of ice water are kept constantly on the head of the patient.

The mouth should frequently be thoroughly cleansed with an antiseptic solution. In wet cupping, the author recommends that the cups be left on for half an hour and the process repeated every four or six hours. He relates the value of this procedure by anatomic conditions observed postmortem. He is not enthusiastic over the applications of ice locally.

The dangers of tympanites in pneumonia are regarded by some authors as being of as great a danger as its presence in typhoid fever, both in a mechanical way through pressure upward and embarrassment of the respirations and through the increased tendency to absorption of toxins. Therefore, the same treatment of this complication should be carried out as in typhoid by change of diet, irrigation of the bowel, salol and laxatives and local application of turpentine stupes.

The embarrassment shown by the lungs in any infection producing tympanites may be demonstrated on autopsy. Oestreich has shown that the atelectatic condition of the base of the lungs in young infants dying from acute intestinal troubles is the probable cause of the extreme prostration and death in these cases rather than the toxemia which is so frequently looked on as the cause.

The rules laid down by Lees for the use of the ice bag in pneumonia, as quoted in the *Sys. of Physiologic Ther.*, are as follows:

1. Apply the ice bag over the dull area and especially over the advancing edge of the consolidation.
2. If the area is large, use two ice bags, or even three.
3. Expect to find a distinct local effect (less bronchial breath-

ing and looser râles) on careful physical examination after the ice has been applied for twenty-four hours.

4. If fresh areas of consolidation develop use additional ice bags; four or even more may be used in a bad case. Correct dosage is as important as with drugs.

5. Apply hot water bottles to the feet and legs. In children apply these before applying the ice.

6. Examine the signs twice daily and shift the ice bags accordingly.

7. If pericarditis is present as a complication, place an ice bag over the heart.

8. If the temperature is below 99 F. or if the hands are cold or the lips blue, remove the bags for an hour, then replace them and use them for two or three-hour periods, with one or two-hour intervals.

9. In severe cases with cyanosis and with a rapid, feeble pulse, consider whether leeches would not relieve the right heart.

10. Pneumonia treated with ice within twenty-four hours after the rigor may sometimes be aborted.

In considering the efficacy of any treatment of pneumonia, Preble, in his recent work on "Pneumonia," states that the variations in the degree of malignancy in the different years must be taken into account; also the previous condition of the patient. Alcoholics, as a rule, are overworked and underfed. In any case, empiricism is not likely to succeed in the treatment of this disease. From a theoretical standpoint, the ideal treatment would be: 1. To destroy the infective agent; 2, to neutralize the toxic products. In this connection he states that no certain progress in the experiments with sera has been made. While some have claimed good results and success from such treatment, others have failed, and consequently any opinion concerning the benefits derived from their use must be held in reserve. He mentions the experience of others in the use of quinin, administered in the form of the tannate, and especially the hypodermic administration of the hydrochlorid in one-half gram doses, administered to patients who are delirous with a small, soft and rapid pulse. And while there is as yet no specific for pneumonia, as this author states, it does not mean that the physician must sit idly by; but, on the other hand, active, thoughtful, careful attention must be given to the patient, who should be placed in a large airy room, with a free circulation of air through one, or better, through two windows. The number of attendants should be limited to one or two. The temperature of the room should be held at 65 F. or less. The patient should be placed on a single bed, with firm springs and mattress. The clothing should be light, proportionate to the temperature of the room. The cotton jacket is of no benefit. The diet should be properly regulated and water offered the patient frequently.

No alcoholics are recommended except in extreme cases and in alcoholic patients. A proper amount of sleep must be obtained, and, if necessary, trional, chloral or whisky may be administered if absolutely necessary.

Fever.—The fever, when ranging under 105 F. in the young or 103 F. in the old, rarely requires more than the ordinary sponging or bath at 90 F. gradually cooled to 80 or 75.

Pain.—Pain can usually be controlled by the application of cold to the parts or counter-irritation by means of iodin, mustard, leeches, or cupping. If these measures fail, strapping the chest is recommended, as in case of a broken rib, using tape from one-half to one inch wide, and placing the lowest strip at the twelfth rib; each succeeding strip should lap over the one below. These should be carried up until the shoulder-chest muscles are reached, then strips should be carried from before backward over the shoulder.

As a last resort to stop the pain morphin may be given hypodermically in doses of grain ⅛ (.008) each.

Cough.—The cough should be treated only when persistent and when the patient is deprived of his rest. In such cases and when the patient is deprived of his rest. In such cases give morphin. The stimulating cough mixtures should never be given early and not until after resolution has commenced. Even in that stage Dr. Preble recommends in their stead guaiacol carbonate in five-grain doses (.30) three or four times a day, or combined with apomorphin, gr. 1/20 (.003).

Dyspnea.—Dyspnea, if it occurs before the second stage is reached, is best treated by venesection. If the patient is not too weak or anemic 18 to 20 ounces may be withdrawn with splendid results. The benefit of oxygen administration is very doubtful, and when it is given the cone should not be held too tightly against the patient's mouth, but some distance away.

Cardiac Failure.—Cardiac failure is the cause of death of the patient. The treatment for this condition consists in the local application of the ice bag, the administration of digitalis in the form of the infusion or fat-free tincture. The alkaloid digitalin has given negative results in Dr. Preble's hands, but he recommends digitoxin as a very valuable heart stimulant. He is of the opinion that the usually prescribed dose of grain 1/250 (.00025) is too large, and he has derived better results from the administration of grain 1/500, and even then the heart must be watched while under its influence.

In old heart lesions, digitalis and nitroglycerin are the ordinary preparations relied on. Cold baths, as a rule, will govern the nervous symptoms. In alcoholics, daily doses of chloral, grains 60 (4.00) may be given.

Small doses of morphin are of benefit in relieving the insomnia, but should be used with caution.

Delayed Resolution.—Delayed resolution requires a climate where the patient can get out every day along with the employment of the iodids, massage of the chest muscles and the practicing of breathing exercises.

DIET IN PNEUMONIA.

In pneumonia the diet is of the greatest importance. That form of diet should be prescribed which will not increase the cough in swallowing, and will not disturb the stomach and thus aggravate the dyspnea. During the height of the disease the patient should be kept on a liquid diet composed of milk, whey, meat juice, broths and egg albumin. The amount of starchy and saccharine foods should be limited. An abundance of water should be given either plain or carbonated, in order to increase the activity of the kidneys and promote toxin elimination. It is stated by some authorities that carbonated waters reduce the viscidity of the sputum, which, as a rule, is very tenacious in pneumonia.

The liquid diet should be continued until after resolution has commenced unless resolution is postponed, as sometimes happens, and if the patient shows failing strength other food may be added in the way of milk toast, scraped beef, and soft-boiled egg or eggnog. In some cases predigested foods must be substituted when the milk is not well borne.

Fruit may be allowed during the course of the disease, depending on the individual case, and especially is it of benefit during convalescence. Orange juice, lemonade and grape juice are of value during the severest stages. In children even more care must be given to diet, as the appetite is very variable and many resources must be at hand to meet their desires and needs.

Dyspnea in Bronchial Asthma.

Dr. W. F. Wagner, Washington, D. C., writes to The Journal concerning the use of suprarenalin solution for the relief of the distressing paroxysms of dyspnea in bronchial asthma. He administers, hypodermically, from two to ten drops of the solution diluted in from ten to twenty drops of normal salt solution or sterile water. He states that in a few minutes the distressing shortness of breath is relieved and the patient is able to breathe in a perfectly normal manner. Dr. Wagner finds that when given by the mouth the same results are not experienced. One injection may give complete relief or it may be necessary to repeat the dose in from eight to twenty-four hours. This treatment relieves the paroxysm, but no curative effect has been observed.

[To guard against accident, it would be well to commence with a small dose, as some patients are more susceptible to the drug than others.—Ed.]

Medicolegal.

Sale of Liquor by Physician to One with Sickness in Family.—The Supreme Court of Arkansas says, in Blakeley vs. State, where it confirms a conviction of a practicing physician of selling whiskey without a license, that the statute of the state forbids the sale of whiskey without a license and makes no exception, but under certain conditions it permits regular practicing physicians to prescribe and to furnish such stimulants to patients under their charge in prohibited districts when deemed necessary for their treatment. If it be admitted that the sale of whisky by a physician for the purposes named, and after he has complied with the conditions of the statute as to the filing of his affidavit, would not be unlawful, still the statute clearly does not authorize the sale of whisky to a man simply because some member of his family was sick.

Liability for Malpractice. X-Ray Evidence.—The Supreme Court of Arkansas says that, in the malpractice case of Miller vs. Minturn, brought by the latter party, the injury was diagnosed as "a compound dislocation of the tibia at the ankle joint, complicated with a Potts fracture." The evidence on the part of the plaintiff fully sustained the charge of malpractice. That on part of the plaintiff approved his treatment, and exonerated him from negligence and unskillfulness. The jury settled the conflict in favor of the plaintiff. It was then insisted that the verdict for $1,500 was excessive. Mrs. Minturn suffered great pain for many months. At the time of the trial she was still unable to bear any weight on the injured limb, and the indications were strong that it would be years, if ever, before she regained use of her ankle. It was suppurating for many months after the physician treated it, and it was apparent that the bones were not properly brought together. The jury was convinced, from legally sufficient evidence, that this unfortunate condition was directly due to the unskillful and negligent treatment of the physician. The verdict was not excessive. Nor does the court consider that the physician could claim the exemption allowed by the constitution of Arkansas against execution on a judgment "on debt by contract," the action, in substance, being for the wrongful act (tort) of the physician. It says that the action could have been brought for breach of contract or for the tort (wrongful act)—in the former case relying wholly on the contract, express or implied, to treat skillfully and carefully, and waiving the tort, or, in the latter, the contract could be ignored, or pleaded as an inducement, and the action sound in tort alone. Again, the court says that the objection was made to the introduction of *x*-ray photographs of the injured ankle, on account of the alleged inherent weakness of such evidence, and lack of expert knowledge of those making them. The photographs were taken by a professor of the university, with an apparatus belonging to the university, and one of the best made. One of the plates was developed by the professor, and the other by an experienced photographer. The professor's knowledge of radiography was acquired from reading and experimentation. He was frank in admitting this was a subject not thoroughly understood by him, nor any one else. Counsel quoted medical authority to the effect that "radiography, though useful, is at times dangerous, by misleading: by no means to be assumed infallible by a jury or a court." Giving full sweep to this caution in regard to this new science, it did not prove the photographs inadmissible, but merely that they were not infallible and might be misleading. The frankness of the witness was a sufficient guard against their being treated as infallible, and there was nothing to indicate wherein they were misleading. There was no error in admitting them in evidence.

Malpractice Liability of Christian Scientist.—The Supreme Court of New Hampshire, speaking through Bingham, J., says that what the parties mutually expected, in the malpractice case of Spead vs. Tomlinson, was that the defendant would treat the plaintiff for appendicitis according to Christian Science methods; and it necessarily followed that the defendant, in the treatment of the plaintiff was to be judged by the standard of care, skill and knowledge of the ordinary Christian Scientist, in so far as he confined himself to those methods. Had the plaintiff been an infant, non compos, or had never assented to Christian Science treatment, then the question whether the practice of Christian Science, as applied to the treatment of appendicitis, is so contrary to common sense and reason that it would be negligent for such a practitioner to undertake to treat the disease, might be open to consideration by a jury. But being a person of mature years, and having sought such treatment, she could not complain that the method itself was improper. After the filing of the opinion by Bingham, J., on the request of the parties, they were further heard by brief and oral argument, and Young, J., prepared an additional opinion for the court, in which the conclusion is reaffirmed that plaintiff's intelligent and voluntary consent to follow the defendant's advice and to abide the result of his prayers was an answer, under the circumstances, to her claim for damages on account of negligence. It is said that nothing is opposed to public policy which is not forbidden by some provision of law, the contention that it would be contrary to sound public policy to permit the defendant to escape without paying damages must mean that there was some provision of the constitution or statute of the state, or of the common law, which made it illegal for the defendant to rely solely on prayer to heal the plaintiff when he knew she had chronic appendicitis, and which gave her an action to recover all the damages she sustained because of such reliance. The courts were not authorized to allow an action against the defendant, even if they thought he ought to have known that Christian Science must fail when applied to the treatment of chronic appendicitis, unless there was a general rule of law which gave such an action. If the plaintiff was to recover on the ground of public policy, she must establish (1) that it was illegal for the defendant to give her such treatment; (2) that the duty of not giving it was imposed on him for her benefit; and (3) that no illegal act of hers contributed to cause her injuries. Assuming (without deciding) that such treatment is forbidden by the provisions of section 8, chapter 278 of the Public Statutes of New Hampshire of 1891, which makes the killing of a human being by culpable negligence manslaughter, or by the provision of the common law which makes it unlawful for any one to do what is liable to endanger the life or health of others, and that the duty of not doing what is forbidden by either provision was imposed on the defendant for the plaintiff's benefit, the question still remained whether the plaintiff's own wrong contributed to cause her injuries. It is elementary that, if it was illegal for the defendant to treat the plaintiff as he did, it was equally illegal for her either knowingly to employ him to give her such treatment or to consent to be *so treated*. It did not follow, as a matter of law, from the fact that the plaintiff could not recover in this action on the claim of negligence, that the defendant would not have been guilty of manslaughter if the plaintiff had died from the effects of his treatment. If he had been indicted under the provisions of Sec. 8, C. 278, Pub. St. 1891, the state would base its right of action on his failure to perform a duty the law imposed on him for its benefit. The state has a direct interest in the lives and health of all its citizens. Every one who has to do with the lives and health of others not only owes the individuals with whom he comes in contact a legal duty, but also owes the state the duty of using ordinary care to do nothing which will endanger their lives or health. In an action by the state it would be no answer to show that, if the deceased had used ordinary care to avoid being injured, he would not have died; for the defendant is not indicted for his failure to perform a duty the law imposed on him for the deceased's benefit, but for his failure to perform one imposed on him for the benefit of the state. Assuming that the defendant's statement that he could and would cure the plaintiff might be the foundation of an action of deceit, her case failed, for there was no evidence that he made it with a fraudulent intent. Although a jury could find from their knowledge of human affairs, their own experience, and the evidence in the case, that the defendant's statement that he could cure the plaintiff without the aid of any material agency, when he knew she had appendicitis, was untrue, it did not follow that they could infer, from the single fact that they were convinced of its untruth, that the defendant did not believe he could induce God to heal her when he made the statement. The plaintiff failed because of the insufficiency of her evidence to prove the facts necessary to maintain her case.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 28.

1 History and Development of Surgery During the Past Century. (To be continued.) F. S. Dennis, New York City.
2 Hepatic Abscess. N. W. Sharpe, St. Louis.
3 *Theory and Practice of Percentage Feeding in Infancy. W. P. Northrup, New York City.
4 *Lobar Pneumonia in Infancy. J. L. Morse, Boston.
5 *Foreign Bodies in the Esophagus. C. E. Black, Jacksonville, Ill.
6 Strabismus and Its Treatment. C. M. Harris, Philadelphia.

3. **Percentage Feeding in Infancy.**—Northrup discusses the question of infant feeding, especially with modified cow's milk. For those turning their attention for the first time to the subject, he offers the following guiding points to serve as a basis in the feeding of healthy infants: 1. *Sugar solution.*—For the first three to five days of life a normal infant may take a 5 per cent. watery solution of sugar of milk, 3 to 4 drams, every three hours. From the fifth to the seventh day, the infant may be given fats, 2 per cent.; sugar, 5 per cent.; total proteids, 0.5 per cent., or whey proteids, 0.25 per cent.; caseinogen, 0.25 per cent.; feedings, 10; amount in each feeding, 1 ounce; alkalinity, 5 per cent. Heated to 155 F. for twenty minutes, or raw, if preferred. Feed every two hours by day, twice at night. 2. *Low average breast milk.*—From the first fortnight to the first month, according to its ability to digest, the average infant may take this, which consists of fats, 3 per cent.; sugar, 6 per cent.; whey proteids, 0.5 per cent.; caseinogen, 0.25 per cent; feedings, 10; amount in each feeding, 1½ to 2 ounces; alkalinity, 5 per cent. Heated to 155 F. for twenty minutes, or raw. Feed every two hours. 3. *High average breast milk.*—For the second or third month this may be taken. It consists of fats, 4 per cent.; sugar, 7 per cent.: total proteids, 1 to 2 per cent., or whey proteids, 0.9 per cent.; caseinogen, 0.5 per cent.; feedings, 8; amount in each feeding, 3 to 4 ounces; alkalinity, 5 per cent. Take raw, if weather is not too warm. Intervals of feeding, 2½ hours. At 6 months, 6 feedings, 6 ounces; intervals, 3 hours; total in 24 hours, 36 ounces. Against constipation, give raw, unboiled proteids. Never consign a baby to a definite prescription, especially a weak one, and then forget it for months. Develop the feedings to the maximum (a good, full diet), especially the proteids, and give raw. Proteids can be given in clean, laboratory-modified milk to a higher percentage than earlier teachings lead us to believe. The feedings of an infant under a year old should be inspected every two weeks.

4. **Lobar Pneumonia in Infancy.**—Morse believes that the course and prognosis of this disease differ materially from the descriptions given in many text-books, and that the affection is far more common than is generally supposed. The clinical history and treatment of the condition are discussed in full.

5. **Foreign Bodies in the Esophagus.**—Black reports two cases of this kind and comments on the value of the Roentgen ray in arriving at a correct diagnosis, disclosing the nature and location of the body in the esophagus. He also emphasizes the value of fluoroscopy, not only as an aid to diagnosis but in directing and controlling the handling of instruments in the esophagus. One of his patients had swallowed an ordinary pin and the other a half-inch iron washer. The pin was removed with forceps under the guidance of the fluoroscope, but the washer could not be budged, owing to the extremely swollen tissues. This second patient expired suddenly, after vomiting a dark fluid consisting of partly digested blood and stomach fluids.

Medical Record, New York.

January 28.

7 *Pathologic Characters, Diagnosis and Epidemiology of Bubonic Plague. M. J. White, Washington.
8 *Limitations of the Office Treatment of Rectal Diseases. C. B. Kelsey, New York.
9 *Use and Abuse of Curettage of the Uterus. E. J. Browd, New York City.
10 *Gluttony or Food Poisoning as a Cause of Symptomatic Epileptic Convulsions. W. P. Spratling, Sonyea, N. Y.
11 Marked Mental Improvement Following Operation for Depressed Fracture of Skull. B. V. D. Hedges, Plainfield, N. J.
12 Geheimrath Dr. Dettweiler. Eulogy Pronounced on the Occasion of the first Anniversary of His Death. S. A. Knopf, New York City.

7. **Bubonic Plague.**—White describes in full the biology of the plague bacillus and its pathogenesis; the pathologic characters of the clinical varieties of plague, the bubonic, the pneumonic, and the septicemic; the postmortem appearances of the plague rat, insects, and other animals; the clinical and bacteriologic diagnosis of plague; the hosts and distributors of the infection, and the manner of its transmission from one place to another. As the principal transmitters of infection from port to port he recognizes: 1. Imports likely to be eaten or infested by insects and rats; 2. persons, wearing apparel and bedding; 3. scavenger and, possibly, granary insects; 4, rats and other animals.

8. **Limitations of Office Treatment. of Rectal Diseases.**—Kelsey says that a very large proportion of all cases of piles, fissures, superficial ulcers, and pruritus, and a certain proportion of abscesses and fistulæ may be radically cured in one's office without resorting to the use of ether or confinement to bed, but much judgment is necessary in selecting the proper cases. In general, it may be said that it is often simpler in the end and safer and more comfortable for the patient to operate at home or in the hospital.

9. **Use and Abuse of Curettage.**—Browd pleads for a more careful, discrete and scientific application of curettage; discusses the method of performance, its indications and contraindications, and cites several cases in which a disregard of necessary precautions resulted in serious consequences.

10. **Gluttony as Cause of Symptomatic Epilepsy.**—Spratling cites a case of epileptic convulsions due to dietetic errors, a fairly common condition, and one generally amenable to treatment. The patients are usually middle-aged men, leading inactive lives and eating and drinking to excess. The primary cause of the convulsive attacks in these cases seems to lie, first, in a weak stomach and, second, in some obscure disorder of metabolism. The type of convulsion is usually of the grand mal variety. The treatment consists of the elimination of waste and toxic products and the prevention of the recurrence of such products. Put the patient on a low diet, one that is easily digested, insist on absolute regularity in taking food, and going to bed on an empty stomach. Cut off all meat for supper and breakfast, and teach the patient to have a wholesome respect for cooked fruits, bread and butter, toast, milk, chocolate and cocoa, eggs, and other such things for supper. If there is a *tendency* to constipation correct it by daily doses of the fluid extract of cascara given some time before breakfast. Stop all use of alcohol and if the patient is irritable or nervous, and if his attacks show a tendency to recur under the low dietetic régime put him on a nerve sedative made up so that each dose represents from 10 to 15 grains of an equivalent of bromide of potassium. Let the patient *take* as much outdoor life as possible. Hydrotherapy is of great value.

Medical News, New York.

January 28.

13 *Irregular Features of Lobar Pneumonia. C. K. Lay, Jersey City, N. J.
14 *Excision of Superior Cervical Ganglion of Sympathetic for Simple Glaucoma. C. W. Cutler, New York.

n cide During a State of Somnambulistic Automatism T
F M Kennan, Pittsburg, and W K Walker, Dixmont,

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ll Jersey City, N J
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ied Ectopic Pregnancy, with Reference to Cases of the
te Intraperitoneal Type G Walsh, Chicago

ılar Features of Pneumonia.—The irregularities to calls attention are empyema, as a sequel, central or pneumonia with late localization; migratory and the sensation of the initial pain of the in in various parts of the abdomen

of Superior Cervical Ganglion for Glaucoma.—es the hope that this operation will not be al into disuse because of any fancied difficulties patient or surgeon The risk and discomfort killful hands, and the danger to the eye it negligible Whether this can be said of it lly in chronic simple glaucoma, with the ation point, is open to discussion Several the author to confirm his position

topic Pregnancy.—Walsh merely emphasizes the treatment of acute, ruptured ectopic y, the mistake of wasting time in the at val of the blood clots

New York Medical Journal.

January 28

19 *Relation of Radiographic Appearances to Clinical Symptoms in Hip Disease R W. Lovett and P Brown, Boston
20 Vesicorectal Anastomosis B M Ricketts Cincinnati
21 Ovarian Angioma B M Ricketts, Cincinnati
22 Case of Brown Sequard s Paralysis Following Gunshot Wound in the Neck A Gordon, Philadelphia
23 Significance of Abulic Symptoms in Mental Disease R H Chase, Philadelphia
24 Pathology and Treatment of Diabetic Gangrene of the Lower Extremity (Concluded) H J Whitacre, Cincinnati
25 *New Stain for Bacillus Tuberculosis I S Wile, New York City
26 Some Abuses in the Intranasal Surgery of To day J M Mackenzie, Baltimore
27 Recurrent Perinephritic Abscess of 26 Years' Standing, Presenting Clinical Picture of Addison s Disease G E Moleen, Denver

19 Radiograph and Hip Disease.—Lovett and Brown undertook to determine what value radiographs possessed, taken by themselves, in the diagnosis of hip disease, and especially in the detection of early disease One hundred consecutive negatives of the hip joint were examined. The clinical history of each case was looked up later and the value of the opinion formed from the radiograph tested in this way These cases included practically every obscure and difficult case of trouble in the hips seen during the last three or four years at the hospital in which these investigations were made, for such cases were likely to be *x*-rayed, whereas routine cases might not be The 100 cases classed by the opinions expressed from examination of radiographs may be tabulated as follows Normal, 20 cases, hip disease or probable hip disease, 61, old hip disease, 4, destructive disease, not tuberculous, 2, coxa vara, 2, doubtful or questionable, 4, abnormal, but not hip disease, 2, probable hip disease (proving to be abscesses of groin), 2, various diagnoses not borne out by clinical history, 3 Of the normal cases, 8 were radiographed for other affections, such as Pott s disease or stone in the bladder, and the hips were included incidentally. Seven cases were radiographed for suspected disease, but recovered so speedily that the affection was probably synovial Two cases with a normal radiograph showed a typical history of hip disease Three cases pursued a history not characteristic of hip disease Therefore, the fact that the radiograph is normal is of much significance and should make one delay about diagnosticating hip disease in such cases Of the 61 cases diagnosticated as hip disease from the radiograph, the clinical history was typical, and the subsequent course of the affection confirmed the radiographic diagnosis The radiographic diagnosis of old hip disease was borne out by the clinical history That of destructive disease not tuberculous proved to be osteomyelitis of both hips in one case, and in the other a hip following typhoid The diagnosis of coxa vara was substantiated by the clinical diagnosis In the two cases diagnosed as probable hip disease, the clinical records showed that these cases had suffered from an acute abscess of the groin in no way connected with the hip. The clinical history of the four questionable cases showed that in one there was atrophy, in another slight atrophy with some enlargement of the head and neck, in the third there was thickening of the head and neck and dislocation; in the fourth, slight atrophy with thickening of the head. The two cases classified *as abnormal* but not hip disease were found to be suffering from some acute affection of the hip, from which they recovered in a few weeks. In the remaining three cases the *x*-ray appearances did not agree with the clinical history. In two what appeared to be marked signs in the hip went with the history of a slight affection, and in the third an opinion was expressed that a destructive affection was osteomyelitis, while bacteriologically it proved to be tuberculous The authors conclude that the value of the radiograph in the diagnosis of hip disease is great in the *hands of persons of average experience.* That a radiograph free from abnormal appearances does not show that hip disease is absent or will not develop, but that in a case of doubtful clinical diagnosis a normal *x*-ray is a matter of weight and makes the likelihood of speedy recovery greater than will a radiograph with abnormal appearances 'In 95 of these cases the opinion formed from the *x*-ray was borne out clinically.

25 New Stain for Tubercle Bacillus.—Wile's *method* is as *follows:* The film is prepared and stained with carbolfuchsin in the usual way, but, instead of using Gabbet's solution, or decolorizing with acid alcohol and counterstaining with Bismarck brown, the smear is drained of excess of carbolfuchsin stain, washed in distilled water, and then plunged repeatedly into Labarraque's solution until the slide presents a uniform brown appearance. The slide is thoroughly washed in distilled water to remove an excess of hypochlorite solution, dried between blotting or filter papers, and examined with a 1/12 immersion lens The tubercle bacilli appear as red rods on a brown field Other bacterial forms, with the possible exception of the smegma and lepra bacilli, are brown in color—the red having been altered to brown by the action of Lebarraque's solution

Boston Medical and Surgical Journal.

January 26

28 Psycholeptic Crises Pierre Janet, Paris
29 *Gastroenterostomy (a preliminary note) J G Mumford, Boston.
30 Prophylaxis of Syphilis W G MacDonald, Boston
31 *Etiology of Pulmonary Tuberculosis Considered in Relation to Its Therapeutics L F High, Southern Pines, N C
32 Points Pertaining to the Management of Diabetic and Non diabetic Glycosuria (Concluded) H Stern, New York City

29 Gastroenterostomy —Mumford proposes an operation he has practiced of late in cases of gastric cancer, which returns the parts to an essentially normal anatomic condition The operation is an elaboration of the well known procedure of Chabut Mumford adds a fourth step to the operation, that of invariable, routine section of the pylorus. He says that it adds nothing to the risk, the vicious circle is rendered impossible, and the duodenum, being side-tracked, becomes a mere duct, a continuation of the common bile duct

31. Etiology of Tuberculosis in Relation to Therapeutics.—High urges going beyond the findings of the microscope, and considers as a reason for the universal prevalence of the disease the incalculable extent of physical degeneration of median degree due to the simple lack of clean, pure, unbreathed outdoor air, on account of which tuberculosis finds a foothold. Treatment should be directed that way, in addition to efforts made to destroy the tubercle germ

St. Louis Medical Review.

January 21

33 Hydatid Cysts of the Liver. N Macphatter New York
34 Case of Typhoid Perforation J. Y Brown, St Louis
35 Ibid C G Kirchner, St Louis

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University of Pennsylvania Medical Bulletin, Philadelphia.

January.

36 General or Localized Hypotonia of the Muscles in Childhood. W. G. Spiller, Philadelphia.
37 Congenital Spastic Rigidity of the Limbs. W. G. Spiller, Philadelphia.
38 *Pseudo-bulbar Palsy. T. H. Weisenburg, Philadelphia.
39 Muscular Atrophy, Degeneration of the Trigeminus Nerve and of the Lateral Columns and Anemic Changes in the Spinal Cord Occurring in Tabes Dorsalis. C. D. Camp, Philadelphia.
40 Pathologic Study of Acute Myelitis. J. H. W. Rhein, Philadelphia.
41 Combined Pseudosystemic Disease with Special Reference to Annular Degeneration. A. R. Allen, Philadelphia.
42 Bulbar Symptoms Occurring with Carcinoma of Parts Other Than the Nervous System and Resulting from Intoxication. T. H. Weisenburg, Philadelphia.
43 Fibrous Nodules in the Cerebral Pia-Arachnoid Causing Appearance of Tuberculous Meningitis. C. D. Camp, Philadelphia.
44 Primary Degeneration of Pyramidal Tracts. Study of 8 Cases with Necropsy. W. G. Spiller, Philadelphia.

38. **Pseudobulbar Palsy.**—Weisenburg reports the following cases: 1. Man, aged 56, syphilitic. History of several attacks of hemiplegia involving the left side of the body, but no distinct history of a right hemiplegia, although the patient had subsequently slight attacks, and examination showed a weakness of all the extremities, distinctly more marked, however, on the left side. The reflexes were also more exaggerated on the left side. Sensation was normal. Speech was bulbar in character; there was difficulty in swallowing and eating; dribbling of saliva, forced crying and dementia. Microscopically, on the right side, an area of secondary degeneration was found in the middle part of the posterior limb of the internal capsule, and a sclerotic area in the outer portion of the lenticular nucleus. The middle part of the foot of the right cerebral peduncle was degenerated. Degeneration of motor fibers was traced through the pons and medulla into the lumbar region of the cord. In the cervical and thoracic regions the degeneration of the right direct pyramidal tract was more intense than that of the left crossed pyramidal tract. On the left side of the brain an area of softening was found in the knee of the internal capsule. The innermost part of the foot of the left cerebral peduncle was degenerated. The degeneration in the pons was limited to one or two bundles quite near the raphe and in the ventral part of the pons. In the medulla oblongata it was confined to the outer part of the pyramidal tract. In the cervical and in the mid-thoracic regions the degeneration was confined to the direct pyramidal tract. The nuclei and the intramedullary fibers of the different cranial nerves were normal. The optic and oculo-motor nerves were normal. The tongue and the laryngeal muscles were normal. Syphilitic round-celled infiltration of the pia was apparent in the cord and brain. 2. Man, aged 52 years, not syphilitic, had a number of attacks of hemiplegia, involving first the left side and later the right. Difficulty in speech and in swallowing became apparent after the second attack. All the extremities were weak, especially those on the left side. Sensation was normal. The patient was demented, had bulbar speech, difficulty in swallowing and chewing, and dribbling of saliva. An area of softening was found in the knee of the right internal capsule. *Microscopically, an area* of softening was found in the medulla, confined to the left pyramid, and a small part of the adjacent fibers of the left lemniscus. Other areas of softening were found in the knee and in the anterior part of the posterior limb of the left internal capsule, and in the ventral part of the red nucleus on the same side. Secondary degeneration of the pyramidal fibers was traced on both sides to the lumbar region of the spinal cord. 3. Man, aged 55 years, not syphilitic had several attacks of hemiplegia, confined to the left side. Examination showed a weakness of all the extremities, more so, however, on the left side. There was difficulty in speech, in chewing and in swallowing. Saliva dribbled from the mouth. The mentality was poor. Areas of softening were found on the right side of the brain, in the anterior limb of the internal capsule near the knee, and in the outer part of the lenticular nucleus, also involving the fibers passing to the posterior limb of the internal capsule. On the left side there was a scar of an old area of softening in the substantia nigra of the left cerebral peduncle. The median and adjacent part of the foot of the right cerebral peduncle was degenerated. The secondary degeneration of the motor fibers was traced to the crossed pyramidal tract of the cervical region of the spinal cord.

American Journal of Obstetrics, New York.

January.

45 Conception of the Sphere of Gynecology. J. Wesley Bovée, Washington.
46 *Further Results in the Use of a Modified Champetier de Ribes Balloon. J. D. Voorhees, New York City.
47 Accidental Perforation of the Uterus During Curettage; with Bowel Injury and Resection of Four Feet of Small Intestine. W. Hessert, Chicago.
48 *New Self-retaining Catheter and Vesical Irrigator. H. G Wetherill, Denver.
49 *Suture and Ligature Material. C. E. Congdon, Buffalo.
50 Removal of a Dermoid Cyst and a Decomposing Fetus from the Uterus by Abdominal Section. J. A. Sutcliffe, Indianapolis.
51 Physometra; Pyometra; Hematometra. E. J. Mellish, El Paso, Texas.
52 Pregnancy Complicating Fibroids. D. W. Basham, Wichita, Kan.
53 Albuminuria and Nephritis of Pregnancy and Labor. R. W. Stewart, Cincinnati.
54 Dermoid Cyst of the Ovary Complicating Labor. W. M. Thompson, Chicago.
55 Early Diagnosis of Cancer of the Fundus. Hunter Robb, Cleveland.
56 Cystadenoma of the Pancreas Removed by Abdominal Section. L. H. Dunning, Indianapolis.

46. **Use of Modified Champetier de Ribes Balloon.**—Voorhees says that of the many measures in use for starting labor and for shortening its duration none is of more value in certain cases than the use of a conical cervical dilator—Champetier de Ribes balloon. The operation for the insertion of the balloon is very simple, except in a few instances, and can be done with one assistant—the nurse. An anesthetic is employed only in those cases where a preliminary divulsion or a manual dilatation of the cervix is necessary to get enough room for the insertion of the bag, where the cervix is so high that it is difficult to reach when the patient is very nervous and excitable, or where the vulvar orifice is very narrow and sensitive. Here light chloroform narcosis is all that is required. The bags employed by Voorhees differ very little from those of Champetier. They are identically the same in shape and are made with his principles—to be impermeable, to be inextensible beyond a certain volume, to be long enough to fill the cervix—in short, to simulate nature's bag as nearly as practicable. Voorhees' balloons differ somewhat in size and are made stronger in order to withstand the uterine and abdominal contractions, to resist the tension when filled with a fluid, and to permit a certain amount of traction on the tube without rupture. This required a foundation of thin canvas, instead of silk, covered by a thicker rubber outside, but, more than all, that the seams be firmly sewed and cemented, especially where the tube joins the ampulla. Some of the objections to the balloons are: 1. They may rupture the membranes. This happens rarely, and it makes little difference if they do, says Voorhees. If the fluid does escape, the dilatation is rapid enough to do little harm. 2. They may separate the placenta—only in placenta previa, but the bag arrests the hemorrhage. 3. They may increase the tension in the interior of the uterus, which is neither painful nor harmful. 4. They may displace the presenting part, but by slow distention of the bag and by watching the presenting part, it can be kept in place. This is more apt to occur in cases of flat pelvis. 5. The cord may prolapse, if it is long or loosely coiled about the neck. 6. Sepsis. If the aseptic technic is correct there should be no infection. Voorhees is convinced that the modified balloon is the best artificial hydrostatic dilator of the cervix; that it is especially effective in dry labors to start pains; that labor, if prolonged and protracted from whatever cause, is hastened and in a large percentage of the cases terminates spontaneously after their use; that the balloon is the best and most certain method of inducing labor for all indications, and that in eclampsia and in placenta previa the balloon has a field of usefulness which

diminishes markedly maternal and fetal mortality. In his private practice Voorhees has used the balloon in 39 out of 200 cases. One of these 39 cases was a dry labor. All the children did well. The balloon was used in 4 out of 19 prolonged or protracted labors. Three were primiparæ with occipito-posterior positions, and in 1 the pelvis was a flat justa-minor. In all, the membranes had been ruptured for some hours. Oxytocics and chloral had been used without success after the patients had been in labor from 13 to 39 hours. The cervix was tough in all cases and undilated beyond two fingers at the time of introduction of the balloons. Complete dilatation was accomplished in from 5 to 32 hours. All the mothers and babies did well. In the 200 cases, labor was induced 32 times. A bougie was used in 8, but had to be supplemented by a balloon. In 24 cases the bag was employed alone. Ten were primiparæ, 19 were multiparæ. The indications for the induction of labor were contracted pelvis, chronic endocarditis, prolonged gestation, accidental hemorrhage, albuminuria and threatened eclampsia and a history of previous difficult deliveries and still-births. All the children were born alive except one, a craniotomy case. Two subsequently died—a non-viable child in a case of accidental hemorrhage, and one of a case of premature twins. The balloon was also successfully used in two cases of marginal placenta prævia. Statistics are also quoted in detail of 4,272 cases occurring at the Sloan Maternity Hospital during the four years ending Sept. 1, 1903, for which we must refer our readers to the original article.

48. See abstract in THE JOURNAL, vol. xvii, p. 487, ¶6.

49. **Suture and Ligature Material.**—Congdon has for several years employed catgut, which is modified so that it may be boiled like silk, and is, therefore, rendered thoroughly dependable for deep sutures and ligatures without destroying its ultimate absorbability or interfering with its natural adaptability for handling and tying. He takes dry catgut, which comes in strands ten feet long, carefully tests for imperfections by passing through the hands and noting its strength and inspecting it for weak points and irregularities, fastens one end to the end of a glass cylinder, for instance, an ordinary drainage tube which has a hole drilled near each end, winds snugly in a single layer, and fastens the other end similarly. Then completely submerges in a 3 per cent. formalin solution. No. 4 is allowed to remain in the solution for four hours, No. 3 for three hours and five minutes, No. 2 for two hours and fifteen minutes, and No. 1 for one hour and thirty-five minutes. The catgut is then removed and immediately placed in running water for the same length of time that it has been in the formalin solution. It is then dried in the open air at ordinary temperature, labeled and put away for future use. The catgut thus prepared may be handled precisely like silk, from which it differs only in its ultimate absorbability. The approximate time for which material thus prepared may be depended on to furnish support to the tissues is as follows: No. 4, seven days; No. 3, five days; No. 2, three days; No. 1, thirty-six hours. Where it is desirable to support and maintain the tissues in apposition for a long time, a 5 per cent. formalin solution is employed instead of a 3 per cent., and the gut is left in the solution for as long a time as is compatible with the preservation of a fair degree of flexibility. This time has been found to be approximately double that stated for the respective sizes of gut when treated by the 3 per cent. solution. In any case, the washing in running water is carried on for the same length of time used in the immersion in formalin solution. No. 4 gut, treated according to the latter specifications, will remain in the tissues for from four to six weeks, but is subsequently completely absorbed. No. 1 gut prepared by the second process may be used in surgery of the biliary or urinary bladder or their tracts with perfect safety. In obstetric practice No. 3 or No. 4 gut, prepared by the first process, is to be selected. In hernia operations, where there is likely to be considerable traction on the fascia, No. 4 gut will meet all expectations.

Archives of Pediatrics, New York.

January.

57 *Nervous Exhaustion in Infants. W. P. Northrup, New York.
58 Hodgkin's Disease Diagnosed as Malignant Lymphoma; Final [illegible]ary Tuberculosis. D. H. Sherman and [illegible]lo.
59 [illegible] and Therapeutic Data. H. W. Berg, New York.
60 *Hemorrhage of Syphilitic Origin in the New-born. W. R. Wilson, Philadelphia.
61 Duration of the Prodromal Period in Roetheln. D. J. M. Miller, Philadelphia.

57. **Nervous Exhaustion in Infants.**—Attention is called to this condition by Northrup, and a case is cited of a four-months baby suffering from nervous exhaustion, nervous dyspepsia and prostration, the condition being cured finally by instituting rest treatment and by providing an intelligent nurse. The baby made a good start in life, but after a few months social demands began to wear on the mother and the milk suffered. In addition to all this was the incessant wear on the child's nerves by the noise made by trolley cars and other street traffic and other injudicious excitement, such as waking the baby from sleep, jumping it in the air, etc. Quiet surroundings were provided, the infant was fed in a dark room, all unnecessary noises were either muffled or reduced, and, above all, a wise nurse was given sole charge of the infant. The result was that in a fortnight the baby was feeding on maximum diet, sleeping perfectly, and gaining in weight. It has thrived ever since.

60. **Hemorrhage of Syphilitic Origin in Newborn.**—Wilson says that the clinical manifestations which accompany hemorrhage are various, depending on the development of the infant as to prematurity, on the degree of blood dyscrasia, and probably on the thoroughness of the specific infection. He relates the following cases: 1. Death following umbilical hemorrhage, with wasting and signs of cerebral pressure. Autopsy revealed intracranial hemorrhage. History of syphilis in the mother. 2. Death in a premature infant following umbilical hemorrhage. Clinical evidences of syphilis during life in the form of vesicular eruption on the plantar surfaces. Autopsy revealed subarachnoid hemorrhage; infarction of both kidneys. A history in the mother of previous miscarriage in the third month. 3. Death from asphyxia. Skin hemorrhages in the form of more or less extensive extravasation. Syphilitic enlargement of the liver. Autopsy revealed nothing of interest beyond the liver condition. History of syphilis in the mother. 4. Death immediately following birth in a premature infant. Bleeding from cord; petechial eruption; marked syphilitic degeneration of placenta. 5. Ecchymosis of serous membrane and minute apoplectic areas in lungs. Tubercular syphiloderm in palmar surfaces. Laryngeal obstruction and marked scaling of skin during life. 6. Hemorrhage from mouth and cord complicated by icterus. Typical manifestation of congenital syphilis in the form of emaciation and pallor. Autopsy showed chronic hepatitis and suprarenal hemorrhage. 7. Hemorrhage from cord. Death followed inanition in the course of suppurating gummata of the scrotum and great toe. 8. Still-born infant. Gumma on external border of both feet. Scleral hemorrhage. Autopsy showed subarachnoid hemorrhage; enlargement of the thymus. 9. Still-born infant. Subcutaneous extravasation. Evidence of leakage from the cord after ligation. Bullous eruption of the palmar and plantar surfaces. 10. Still-born infant. Cutaneous hemorrhage. Autopsy showed pericranial and subperiosteal hemorrhage; subcapsular hemorrhage of the liver; syphilitic periostitis and necrosis of the cartilage of the nose existed in the mother.

Physician and Surgeon, Detroit and Ann Arbor, Mich.

December.

62 Pancreas in Amyloid Disease. E. E. Butterfield, Ann Arbor.
63 *Advantages of the Short Incision in Ideal Laparotomies. Bayard Holmes, Chicago.
64 Surgery of the Hand. Hal C. Wyman, Detroit.
65 Accidental Multiple Vaccination of the Face Associated with Psoriasis. D. M. Cowie, Ann Arbor.
66 *Duodenal Ulcer Caused by Pressure from Stones in Gall Bladder. G. H. Cattermole, Boulder, Colo.

63. **Short Incision in Laparotomies.**—Holmes points out that surgical incisions are made for the purpose of securing drainage and to give access to the parts. In the former instance there is every reason for a liberal gash, while in the latter case the wound must be closed again, and many reasons exist for an incision as short as possible. In the former case drainage must be adequate, and a longer incision will not detract from this end, while a shorter one is fatal to its purpose. In the latter case the cut must be long enough to reach the protected part, and if it is longer it only adds to the mutilation of the patients and to the disadvantages of closure. In operations about the face, cosmetic reasons exist for making a short incision, and in abdominal incisions for various purposes an extremely short incision prevents at once the disfiguring scar, prevents waste of time and suture, shortens the anesthesia, prevents the operation hernia, allows the patient an almost immediate erect posture and shortens the stay in the hospital. All these advantages encourage early, and therefore safe, operative procedure, diminish greatly the number of years of suffering by the multitude of patients who are deterred from seeking surgical relief by the long period of confinement, the risk of hernia, and the disfiguring scar which a long incision entails.

66. **Duodenal Ulcer and Gallstones.**—Cattermole's patient was suddenly seized with pain in the region of the liver, extending behind to the right shoulder. He soon became moribund; there was no pulse at the wrist; he could not swallow water; the abdomen was very much distended and tympanitic, especially over the liver; there was no peristalsis nor tumor. Death ensued within twenty-four hours. In cutting through the peritoneum, just below the ensiform cartilage, a large amount of gas and brownish fluid escaped. All serous surfaces were congested and there was considerable deposit of fibrin on the intestines and parietal walls. About the liver, stomach and duodenum there were adhesions, showing where fluid had been walled off. The gall bladder was contracted down over two large gallstones, and where the gall bladder came in contact with the duodenum an ulcer had formed, perforating the bowel. This ulcer was on the upper surface of the duodenum, about one-half inch from the pyloric opening of the stomach. The edges of the ulcer were hard and fibrous, showing a long-continued irritation. Evidently, the ulcer was caused by pressure from the gall bladder. The ulcer was largest on the peritoneal surface, sloping toward the opening in the mucosa. The patient had for years led a very sedentary life. thus probably lessening the danger of early perforation.

Journal of Infectious Diseases, Chicago.

January.

67 Some Physical Properties of Enzymes. E. J. Levi, Ann Arbor
68 *Fatal Infection by a Hitherto Undescribed Chromogenic Bacterium Bacillus Aureus Fœtidus M. Herzog, Manila, P. I.
69 Observations on the Bionomics of Anopheles. E. O. Jordan and M. Hefferan, Chicago.
70 *Summer Diarrhea in Infants. G. H. Weaver, R. M. Tunnicliff, P. G. Heinemann and Mae Michael, Chicago.
71 Identification of Alcohol, Soluble, Hemolysins in Blood Serum A. Woelfel, Chicago.
72 Protective Inoculation Against Asiatic Cholera. R. P. Strong. Manila, P. I.
73 Studies in Phagocytosis L Hektoen and G. F. Ruediger, Chicago.

68. **Fatal Infection by Bacillus Aureus Foetidus.**—The observations reported by Herzog refer to a case of fatal human infection by a hitherto undescribed organism, which is evidently not very pathogenic in ordinary conditions and, as a rule, is probably a harmless saprophyte, which, however, in circumstances especially favorable may become parasitic and cause a fatal issue. The patient died rather suddenly, and it was suspected that he had died of plague, having an open wound on his right leg and a marked swelling of the inguinal glands of the right side. Cultures made from the liver and heart developed pure cultures of a short, small bacillus which produced a golden-yellow pigment. The name *Bacillus aureus fœtidus* was selected for this microorganism because of its chromogenic and malodorous properties. It is a short bacillus with rounded ends, varying in size from 0.6 to 2 microns long and from 0.55 to 0.8 microns in thickness. It frequently presents itself as a diplobacillus, and occasionally is differentiated with difficulty from true diplococci. It possesses a capsule of moderate size Spore formation was not observed. The organism is not motile. It stains readily by the watery anilin stains, and when lightly stained it may show polar granules. Gram's method decolorizes the bacillus. In culture it produces an intense golden-yellow pigment, and all cultures where aërobic or anaërobic have a fetid, cheesy and somewhat cadaverous smell. The thermo death point of the organism was determined to be 62 C. It grows readily on all culture media.

70. **Summer Diarrhea in Infants.**—With a view to solving some of the problems connected with the intestinal diseases in children, the authors undertook to study all the cases of summer diarrhea presenting themselves at a Chicago sanitarium. Cultures were made and studied from 102 cases From 76 cases no bacilli corresponding to any of the types included in the dysentery bacillus group were found. From 26 cases (25.4 per cent.) bacilli were cultivated which possess the cultural properties shown by one or the other member of the dysentery bacillus group. No culture was obtained which corresponded to the true Shiga bacillus Grouped according to the classification of Flexner, 15 cultures from 11 cases correspond to the Flexner-Harris type, and 18 cultures from 17 cases to the bacillus Y type. From 2 cases both these types were obtained. The methods employed in testing the agglutinative properties of organisms obtained from these cases made use of four different strains of dysentery bacilli: 1, Shiga; 2, Kruse; 3, Flexner, and 4, the Y type. Of the 33 organisms examined, 29 gave positive results with one or more of the sera. Of these 29, 9 agglutinated with a single serum, as follows: 3 with Shiga's serum, 1 with Kruse serum, 4 with Flexner serum and 1 with Y serum; 12 agglutinated with two kinds of sera, as follows: 3 with Shiga and Flexner sera; 2 with Shiga and Y sera; 4 with Kruse and Y sera; 3 with Flexner and Y sera. Six agglutinated with three kinds of sera: 2 with Shiga, Kruse and Flexner sera; 1 with Shiga, Kruse and Y sera; 2 with Shiga, Flexner and Y sera; 1 with Kruse, Flexner and Y sera. Two organisms agglutinated with the four different sera employed. So far as the clinical features of these cases are concerned, dysentery bacilli were not found in all cases characterized by mucus and blood stools The group of cases in which dysentery bacilli were isolated from the stools presented the clinical picture of ileocolitis, but these cases did not differ clinically from cases of iliocolitis in which these bacilli were not found.

Brooklyn Medical Journal.

January.

74 Lecture on Acute Septic Inflammations of the Throat and Neck. Felix Semon.
75 Cholecystitis: Its Diagnosis and Treatment. John B. Deaver, Philadelphia.
76 The Pathology of Cholecystitis. George P. Muller, Philadelphia.
77 Transillumination of the Stomach. H. W. Lincoln.
78 Some Thoughts on the After-care of Laparotomies Clarence Reginald Hyde.
79 Colles' Fracture. William F. Campbell. Brooklyn
80 The Clinical Significance of Tube Casts in the Urine (To be continued.) Thomas C. Craig.
81 Surgical Anesthesia in Childhood. A. F. Erdmann

Medicine, Chicago.

January.

82 Remarks on a Case of Severe Appendicitis Ending in Recovery Without Operation. Herman B. Allyn, Philadelphia
83 Air, Food and Exercise in the Prevention of Tuberculosis A. M. Fernandez De Ybarra, New York.
84 Skiagraph of an Old Ununited Fracture of the Scaphoid Bone Illustrating the Value of the X-ray in the Diagnosis of Such Fractures. Levi J. Hammond, Philadelphia
85 Three Cases of Acute Hematemesis. F. Gregory Connell Salida, Colo.
86 Modern Treatment of Specific Urethritis. H. M. Christian Philadelphia.
87 Lecture on Tropical Medicine. George G. Groff, Porto Rico

Denver Medical Times.

January.

88 Surgical Treatment of Displacements of the Uterus R. C Coffey, Portland, Ore.
89 The Diagnosis of Pregnancy. T. M. Burns, Denver, Colo

The Vermont Medical Monthly, Burlington.

November 25

90 Empyema M L Chandler, Barre, Vt.
91 Typhoid Fever. Its Etiology, Modes of Dissemination and Treatment F H Ross, St Johnsbury, Vt.
92 Chlorosis W E Lazell, Barre, Vt
93 Conduct of Normal Labor W. S Marshall, Montpelier

Nashville Journal of Medicine and Surgery.

December.

94 Ethics of Gonorrhea in Females E S McKee, Cincinnati O

Pacific Medical Journal, San Francisco.

January

95 Impotency, Medically and Legally Considered R. W Shufeldt.
96 Treatment of Localized Tuberculosis Lesions E H Smith, San Francisco
97 Active Principle Therapy R J. Smith, Smithfield, Utah

The Texas Medical Journal, Austin.

January

98 Some Remarks on the Operation for Hernia T J Bennett, Austin
99 Moccasin Bite Treated with Adrenalin Chlorid R Menger, San Antonio

Northwest Medicine, Seattle, Wash.

January

100 The Technic of Pelvic Operations by Vaginal Section J R Goffe, New York City
101 Periodic Headache R W Perry, Seattle, Wash
102 Injuries of the Spine with Report of a Case W C Cox, Everett, Wash
103 The Electrical Treatment of Chronic Constipation J R Harvey, Sunnyside, Wash

Virginia Medical Semi-Monthly, Richmond.

January 13

104 Pneumonia—From the Practitioner's Standpoint W E Anderson Farmville, Va
105 Catarrh of the Seminal Vesicles F C Walsh, Washington, D C
106 Some Suggestions to the General Practitioners as to the Care of Certain Eye Cases J L Kent, Lynchburg, Va
107 Papilloma of the Conjunctiva and Cornea H H McGuire, Winchester, Va
108 Use of Bisulphate of Soda in the Treatment of Typhoid Fever—A Report of Cases J E Cannady, Paint Creek, W Va
109 Vaccination—A Few Practical Reflections W J Innes, Aspenwall, Va
110 Management of Acute General Peritonitis D G Sherrill, Louisville, Ky

Washington Medical Annals, Washington, D. C.

January

111 Address, Medical Society of the District of Columbia Charles W Richardson
112 The Importance of Middle ear Suppuration from the Standpoint of the General Practitioner. Edward B Dench, New York.
113 A Plea for the Early Treatment of Strabismus Oscar Wilkinson, Washington, D. C
114 Case of Patent Urachus, Operation George T Vaughan Washington
115 Ovarian Cyst, with Abscess Salpingitis and Appendicitis J Ford Thompson, Washington
116 New Etiology and Prophylaxis of Appendicitis A F A King, Washington
117 Pott's Paraplegia, with Report of Three Typical Cases A R Shands, Washington
118 Case of Extra uterine Pregnancy, Operation G Brown Miller, Washington
119 Case of Chronic Inflammation of Larynx D S Lamb, Washington
120 Case of Round celled Sarcoma of Kidney in a Child, Enucleation James Kerr, Washington
121 Case of Appendicitis and Ovarian Cyst with Twisted Pedicle Complicating Pregnancy H D Fry, Washington

FOREIGN.

Titles marked with an asterisk (*) are abstracted below Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest

British Medical Journal, London.

January 14

1 Arteriosclerosis James Barr.
2 Effect of Salts of Potassium, Ammonium and Bile Salts on Blood Pressure Arthur Edmunds, London
3 *Sanatorium Treatment of Phthisis Is It Worth While? W B Ransom
4 *Results of Four Years' Sanatorium Work in Treatment of Phthisis Rowland Thurnam and Charles E Wheeler, Norcrach upon Mendip
5 *Further Report on the Treatment of Phthisis by Iodoform Infusion Thomas W Dewar, Dunblane.
6 Treatment of Hemoptysis C. H. Cattle
7 Operative Methods—New and Old—in Tuberculosis of Knee Joint William Thomson, Dublin
8 Tuberculosis and Mortality in Childhood William P S Branson

3 **Sanatorium Treatment of Phthisis.**—Ransom says that the evidence at hand shows that in sanatoriums as now managed from one-fourth to one third of the patients regain their working capacity for at least four years, and is strongly of the opinion that those who survive that period will live longer. Moreover, it is certain that when patients are sent to sanatoriums earlier in the disease a larger number of recoveries will occur. If consumptives are to be treated at all, they are best treated in a special hospital, and such a hospital is best placed on a dry, bracing spot, with plenty of pure country air. Such a hospital is a sanatorium. It would be an advantage if each sanatorium had one or more special out nurses with special training in hygiene to visit patients at their own homes.

4. **Results of Sanatorium Work in Phthisis.**—The total number of cases available for use in this report is 289. The authors divide these into three main classes: (a) Severe (disease affecting either the whole of one lung or considerable areas in both, often complicated with disease of the larynx). (b) Moderately severe (disease affecting not more than one-half of one lung, with or without slight affection of the other—laryngeal diseases occurring in this class also fairly frequent). (c) Slight (disease confined to one lobe of one lung). Class A included 183 cases. Of these 56 died either in the sanatorium or at home within twelve months of commencing treatment. Twenty-three patients died within two years; 30 patients were followed for two years and then lost sight of; 39 patients are in fair health in 1904, and 35 patients are absolutely well (cured). Class B includes 84 cases. Of these 2 died within twelve months, 3 within two years, 19 alive after two years; 11 are in fair health and 40 cases are cured. Class C includes 22 cases. Of these 1 was alive after two years, 1 is in fair health and 20 cases are reported as cured Taking all the classes together, the percentages are as follows: Died in 12 months, 58 cases, 20.06 per cent Died within 2 years, 26 cases, 8.9 per cent. Alive after 2 years, 50 cases, 17.3 per cent. In fair health, 51 cases, 17.6 per cent. Cured, 104 cases, 35.9 per cent.

5. **Iodoform Infusion in Phthisis.**—Dewar makes a further report on the treatment of advanced pulmonary tuberculosis by the intravenous injection of iodoform. Since publishing his first paper, he has modified the solution by adding 40 per cent. of liquid paraffin to it. (The original solution was a not quite saturated solution of iodoform in ether.) Liquid paraffin is perfectly soluble in ether, and the resulting solution is blander and less irritating to the veins. It further makes it possible to use much smaller vessels; in fact, the limit is only defined by the size of the needles and the operator's dexterity. Before using, Dewar filters an ounce or so through cotton wool. He has occasionally used iodoform in liquid paraffin alone in the proportion of one-half grain to 10 minims. This preparation is perfectly workable through fine needles and can be used in tuberculous joints or hypodermically in tubercle of the skin and glands and peritoneum It is painless on injection, and is prepared by crushing the iodoform in the liquid paraffin with a probe in a conical minim glass It is essential to use a non-actinic all-glass syringe Dewar uses a half-grain tabloid of iodoform, which is placed in the syringe, crushed with a piston, the ether drawn in and shaken until the powder is dissolved, when a few minims of liquid paraffin are drawn up and the whole is well shaken. To facilitate introduction, to avoid haste and to prevent any escape the point of the needle is sealed by dipping it in hazeline cream. It is desirable, when possible, to inject in daylight, preferably after 3 p. m, because then the veins are generally fullest Enter the needle vertically and try to pin the top of the curve of the vessel with the point of the needle, and then, pushing it gently on and bringing it into line with the caliber of the tube, insert it half way. The sensation of going into a space is felt at once Dewar reports 9 cases, in five of which the disease was arrested, that is, the condition was changed from a state of danger to one of comparative safety. The patients have lost their cough, and in the occasional sputa only a very few tubercle bacilli can be found, although Dewar attaches no especial importance to this. On the whole, however, Dewar feels that the result in these 5 cases is a good one, as the one

and only factor in the treatment was the infusion of iodoform, and to this he attributes their immediate recoveries. In 2 cases the treatment retarded the advance of the disease. The remaining 2 cases are examples of the severe type of the disease and the slight improvement obtained is all that can possibly be expected. Dewar still contends that the continuous successful injection of an ethereal solution of iodoform is followed by improvement, that it is innocuous in moderate doses, and powerful to arrest pulmonary tuberculosis.

The Lancet, London.

January 14.

9 Emergencies in Ophthalmic Practice. A. Maitland Ramsay, Glasgow.
10 *The X-ray Treatment of Leukemia. Report of a Case, with an Abstract of the Literature. J. C. G. Ledingham and R. G. McKerron, Aberdeen.
11 Influence of Rainy Winds on Phthisis. (Continued.) William Gordon.
12 Some Clinical Observations with New Remedies. Nestor Tirard, London.
13 *Hemorrhagic Typhoid Fever. David Blair, Lancaster.
14 Injuries to the Eye by Penetrating Foreign Bodies and the Results After Magnet Operations. Leslie Buchanan, Glasgow.

10. X-Ray Treatment of Leukemia.—Ledingham and McKerron report the case of a boy, aged 11, suffering from splenomedullary leukemia, who was markedly benefited by exposures to the action of the *x*-ray. Before beginning treatment there was marked distension of the abdomen, due to an enormous enlargement of the spleen, the lower border of which reached to within a finger's breadth of the pubes, while the anterior border extended two inches beyond the middle line. Examination of the blood showed the characteristic changes of leucocythemia of the splenomedullary type, red cells, 3,570,000; white cells, 234,000, and hemoglobin, 80 per cent. Differential count: Myelocytes, 48 per cent.; polymorphonuclears, 39 per cent.; small and large lymphocytes, 8 per cent.; mast cells, 6 per cent., and nucleated red cells, 4 per 100 white cells. The *x*-rays were applied over the splenic tumor and the lower epiphyses of the femor. Occasionally they were applied over the sternum and vertebræ. The exposures lasted ten to fifteen minutes every alternate day, but for a period daily exposures were given with no bad effects. In fact, throughout the three months of *x*-ray treatment no constitutional effects were noted apart from slight prickling sensations, lasting for a short time after the applications. There was never any nausea, headache, nor rise of temperature traceable to the *x*-ray treatment. The vacuum tube was always fixed at a distance of somewhat over five inches from the area exposed. One month after the treatment was begun a marked erythema appeared over the splenic area, but it subsided in a few days. Within six weeks the leucocytes dropped to 23,000. On one occasion they dropped to 17,800. The mean of the red cells was about 4,500,000, and on several occasions counts of over 5,000,000 were recorded. The hemoglobin appeared to remain fairly stationary at from 55 to 60 per cent. The ratio of polynuclears to myelocytes rose from 0.5 before the *x*-ray treatment to 2. The myelocytes, however, showed no tendency to disappear altogether, and the blood did not return to normal proportions. Previous to this treatment the patient was more or less bedridden, walking was always difficult and breathlessness with face flushings exceedingly troublesome. Within a month after the commencement of treatment he felt better and was able to walk, and even climbed stairs, without any bad effect. The abdominal girth was diminished about two and a half inches within four months. In the same length of time he gained 12 pounds in weight. The splenic tumor was markedly softer on palpation and is constantly diminishing in size.

13. Hemorrhagic Typhoid Fever.—Blair's patient became ill suddenly. She passed blood by rectum, looked drowsy and ill, and complained of pains all over the body. Her pulse rate was 140; respiration, 44; temperature, nearly 105. She was frequently purged during the day, while some of the stools seemed to consist of nothing but blood. Physical examination revealed nothing abnormal. There was no rash, and no enlargement of the spleen could be felt. The temperature gradually dropped to 101.6, but on the third day again rose to 104.8. On the following day a considerable increase in the tumescence of the abdomen was noted. The urine contained blood; *petechiæ* had come out on the legs and arms. At the basis of both lungs râles were audible, bronchophony was well marked and there were small areas of tubular breathing. On the sixth day there was considerable epistaxis and bleeding from the gums. At night she had one "fit" and was purged three times, pure blood being passed on each occasion. She died on the seventh day, after having had six more "fits." In attempting to arrive at a diagnosis, Blair considered purpura hemorrhagica, that form of ulcerative colitis known as acute diphtheritic dysentery, and latent typhoid fever. The autopsy disclosed, in the lower eighteen inches of the small intestine, extensive ulceration of Peyer's patches, several of the ulcers having penetrated down to the peritoneal coat. The ulcers were typical of the third stage of enteric fever, and they stopped abruptly at the ileocecal valve. The disease, therefore, was obviously one of those extremely unusual types of typhoid fever exhibiting a hemorrhagic diathesis. The most remarkable feature of the case was the latency of the early symptoms.

Annales des Mal. Génito-urinaires, Paris.

Last indexed XLIII, page 1825.

15 (XXII, No. 13.) Les calculs phosphatiques de la vessie (urinary calculi). F. P. Guiard.
16 De la chirurgie urétérale dans le traitement de la fistule Garovi (Plaisance, Italy).
17 modifié pour faire pénétrer la chaleur l'urèthre (dilator for application of dry heat or cold). P. Bakaleinik (Kiev).

Presse Médicale, Paris.

Last indexed page 74.

18 (No. 98, December 7.) *Serosa-Fatty Fringe Apparatus of the Heart; the "Apex Joint."—L'appareil séro-graisseux du coeur. P. Poirier.
19 *Le diabète conjugal, existe-t-il? A. Martinet.
20 (No. 99.) Indications de la prostatectomie. E. Desnos.
21 Les progrès de la vaccination. M. Labbé.
22 Les deux indications de la trachéotomie dans la tuberculose laryngée. M. Lermoyez.
23 (No. 100.) Réflexe oesophago-salivaire. H. Roger.
24 *Les lésions cardiaques et les affections rénales. F. Bronowski
25 (No. 101.) *Traitement du cancer de la langue (of tongue). J. L. Faure.
26 *Sur l'épreuve bactériologique du catgut (tests). Hallion and Carrion.
27 (No. 102.) La tuberculose à la campagne (in French rural districts). R. de Gantijac.
28 Gigantisme et infantilisme. Pagniez.
29 *Traitement des néphrites par la "maceratio" renalina porci. M. Page and Dardelin.
30 (No. 103.) Traitement chirurgical des néphrites chroniques Le Dentu.
31 Réflexe oesophago-salivaire et réflexe oesophago-lacrymal. P. Carnot.
32 La prétendue hérédite du rachitisme. J. Comby.
33 (No. 104.) *X-ray Treatment of Tinea.—Traitement des teignes tondantes par les rayons X. R. Sabouraud and H. Noiré.
34 Traitement des nourrissons en état de croissance retardée (atrophie, athrepsie infantile). E. Terrien.
35 (No. 105.) Examen clinique du dos d'un enfant (of child's back). P. Desfosses.
36 Climate as Test for Diagnosis and Prognosis.—Le climat Méditerranéen français considéré au point de vue clinique G. Sardou (Nice).
37 La réflexe oesophago-lacrymal. H. Delaunay.

18. Fatty Processes at Apex to Facilitate Its Movements.—Poirier is professor of anatomy at Paris, and here calls attention to a concentric arrangement of fringe-like, fatty processes in that portion of the pericardium which corresponds to the apex. He thinks that they are designed to serve the same purpose as the fatty processes in the knee, to obviate concussions and to facilitate movement. Inflammatory processes, by soldering these leaflets together, must hamper the movements of the apex. In examining the heart of three persons immediately after execution, and in a number of other cadavers, he always found a certain amount of liquid in the pericardium, showing that it is considerably larger than the heart itself. Radioscopy of 50 subjects also always showed traces of an open space during inspiration between the heart and the diaphragm, as if the heart separated from the diaphragm. This he believes is rendered possible by the sero-fatty processes he describes and illustrates. There are usually three, from 4 to 5 cm. long, and they look like a solid mass of sero-fatty tissue, but they can be separated and the three leaflets turned back, exposing an area of the pericardium, 6x10 cm., over the apex.

19. **Conjugal Diabetes.**—Martinet has encountered 5 cases of diabetes in both man and wife among 25 diabetic patients in his city practice. Debove has found 6 cases among 50 diabetics. This is a far larger proportion than that mentioned by Schmitz and Delcage, who noted only 1.12 and 3.55 per cent. among 2,320 and 478 cases of diabetes, respectively. The discrepancy in the statistics, Martinet thinks, is due to the fact that the latter physicians practice in watering places where they see the patients only for a short time and know little of their family life.

24. **Heart Lesions and Kidney Affections.**—Bronowski has been studying the reciprocal action of heart defects and kidney affections, and has become convinced that the routine method of treating heart affections is based on false premises. In 165 cadavers at Warsaw in which some heart or aortic affection had been the principal malady, he found only 6 in which the kidneys did not show some pathologic changes. In 119 there was chronic and in 3 acute nephritis; in 24 there was cyanotic induration, in 13 parenchymatous congestion, and 1 mere hyperemia. Mitral lesions preponderated, 54 mitral to 50 aortic, and 18 in which the two were associated, a total of 122 accompanying unmistakable nephritis. This is a proportion of 74 per cent. He produced artificial heart lesions in 30 dogs, introducing into the left ventricle a fine needle terminating in a hook, with which he tore some of the valves. Only 4 survived the operation long enough for definite conclusions to be drawn. Two of these presented distinct nephritis. He accepts as established the fact that any interference with the circulation in the heart modifies the composition of the blood, and by inducing stasis in the kidneys depresses their vitality. This favors the development of disease, as the toxins are not eliminated naturally by the kidneys. They pile up in the blood and react on the heart in turn. Bronowski believes that the heart lesion is frequently the first link in the chain which leads to kidney disease. The latter may likewise induce heart disease, but this occurs less frequently. The practical conclusions are that the customary treatment of heart affections is irrational and injurious. Instead of trying to stimulate the kidneys to extra work, they should be spared and the patient should be treated as if nephritis were already established. Drugs to regulate the circulation should be prescribed (iodin, iron), mineral waters, dieting, etc. On the other hand, in case of kidney disease, disturbance in the heart functions should be feared, and treatment should aim to prevent extra demands on the heart. Hot baths, exercise and pilocarpin should be avoided, and greater stress be laid on mineral waters, dieting and a dry, tempered climate at a low altitude. The chief aim of treatment in both the heart and kidney disturbances should be to regulate the circulation.

25. **Treatment of Cancer of Tongue.**—Faure insists on the necessity for operating in two sittings in case of cancer of the tongue, unless the lesion is very small. When the glands have to be excised, this should be done first from without, reserving the direct intervention on the tongue for the very last.

26. **Tests of Catgut.**—Hallion and Carrion found that no cultures developed from certain specimens of catgut in the first bouillon, while some developed as soon as the catgut was transferred to fresh bouillon. They discovered that this was due to the fact that the manufacturer had used some antiseptic—sublimate—in the production of the catgut. This had checked the growth of bacteria. When it had dissolved out the bacteria proliferated unchecked.

29. **Successful Treatment of Nephritis with Pigs' Kidneys.**—Page and Dardelin have treated 18 cases of nephritis by giving a maceration of fresh pigs' kidneys. They say that the results have been so remarkable that they do not hesitate to proclaim that this is the most certain and the most powerful weapon at our disposal in fighting with nephritis. The nephritis was of various types in their cases, some long rebellious to other measures and some with pronounced arteriosclerosis. Some of the patients have been examined one, three and eight months afterward, not a trace of recurrence of albumin having been found in any instance. Arrangements are made with a druggist to have him fill the prescription, which reads: "Maceratio renalina porci, No. 1." The remedy might become repugnant to the patients if they prepared it for themselves. The kidney of a freshly slaughtered pig is cut up, rinsed carefully to remove all traces of urine, and then chopped fine and ground to a pulp. This is placed in 300 gm. of cold physiologic salt solution (7.5 gm. per 1,000). It is set aside in a cold place for three hours, stirred occasionally, and is then ready to use. The patient sips all the reddish fluid in three portions during the day, leaving the sediment. The taste is not bad, especially if it is mixed with a little julienne soup. It should be taken for ten consecutive days with milk or milk-vegetable diet, or merely in addition to the ordinary diet. One of his patients had the nephritis of pregnancy, recurring during three pregnancies; albumin in the third month .17 gm. to the liter. The albumin vanished completely and permanently after eight days of the maceration.

Case 1.—Woman of 35, infectious nephritis; albumin 2 gm. to the liter. On exclusive milk diet for eight days, albumin 1.5 gm. Macerated kidney given for ten days: albumin .2 gm.; milk for fifteen days, and after this, albumin 0. Case 2. Man of 58, lead nephritis; albumin .5 gm. on a milk diet. Macerated kidney for ten days with ordinary diet: albumin 0. Case 3. Man of 78 with infectious nephritis and slight arteriosclerosis; albumin 55 gm. to the liter. After a month of milk-vegetable, unsalted food, albumin .51. Macerated kidney: albumin 0. Case 10. Man of 31, infectious nephritis. Scarlet fever six months previously. Macerated kidney for ten days: albumin 0. Case 15. Woman of 60 with arteriosclerosis and uremia; albumin 2.15 gm. to the liter. Under ten days of macerated kidney, milk, intestinal lavage and serum, the albumin dropped to 1.85 gm. and to 0 the week after.

Several other patients had been addicted to morphin and the nephritis was evidently of a toxic nature, with albumin of .4 to 1 gm. In every instance the albumin vanished completely under ten days' treatment with macerated kidney.

33. **X-Ray Treatment of Tinea.**—Sabouraud's communications on the successful application of the *x*-rays to the treatment of parasitic alopecia areata have been summarized in these columns, page 1265 of the last volume. His report for 1904 is even more encouraging. It is no longer necessary to take the children with tinea into the hospital. Ambulant treatment is proving ample, and instead of the two years formerly required, the cure is complete in three months at farthest. The tube should be at a distance of 15 cm. from the patch to be treated, and a scrap of platino-cyanid paper should be exposed to the action of the center of the tube at the same time (equal to 5 Holzknecht units), but at a shorter distance—8 cm. When the thin sensitized paper has changed to the tint B of the radiometer the exposure is terminated. By watching the shade of the sensitized paper the operator can be confident that there is no danger of a burn, erythem or permanent baldness as long as the shade is below the tint B or the 5 Holzknecht units. After the exposure the part is rubbed with a salve containing oil of cade, which is washed off each morning. The entire scalp is then rubbed with a 10 per cent. alcoholic solution of tincture of iodin, to prevent reinfection from the hairs as they drop out of the exposed patch. Each patch requires a separate exposure. There are no by-effects, not even a headache when the entire scalp has thus been exposed.

Semaine Médicale, Paris.

38 (XXV, No. 2, January 11.) *La néphrite par le sublimé. A. Chauffard.
39 La mortalité de l'anesthésie génerale par la scopolamine-morphine.

38. **Nephritis from Use of Corrosive Sublimate.**—Chauffard's patient was a young woman who had ingested a concentrated solution of corrosive sublimate ordered for vaginal injections. In another case a young woman had taken 5 gm. of the sublimate and 10 c.c. of laudanum. There was complete anuria for five days, then emission of 70 c.c. of an acid urine, very slightly albuminous, but containing casts and epithelial cells. The amount increased to 900 c.c. the ninth day, with death on the twentieth from acute pericarditis and heart failure. The first patient recovered after a period of five days of complete anuria. The urine contained merely traces of albumin. Every case of sudden and complete anuria occurring in a healthy subject, free from any kidney history and without

known cause, should suggest an intoxication, especially if accompanied by serious symptoms of acute gastroenteritis. Mercurial intoxication should be among those suspected, even in the absence of stomatitis and salivation, neither of which were noted in the above cases until after several days. Even if the patients recover, a tendency to nephrosclerosis will probably be left. In the patient who recovered, functional tests of the kidney indicated reduced *permeability* on the part of the kidneys and progressively rising blood pressure. The anatomic lesions in the kidneys in the fatal case reported were such as to indicate that the glomeruli were the only parts of the kidney's spared by the *poison. Consequently, in treating a case of sublimate poisoning, it is useless to give ordinary* diuretics. The only one that can be expected to act is salt solution. More than 3 quarts were injected in four days in the case reported, with eminently favorable results. No one need fear to induce anasarca by injecting these large amounts of salt solution in the complete anuria of these patients. They have lost such large amounts of water by their excessive vomiting and diarrhea that they are in need of water. The arterial pressure is low. The condition resembles that of the anuria in cholera, but the saline infusion should be suspended if the blood pressure rises above normal or if edema develops. Toxic anuria never indicates surgical interference. The only thing that can be done is to overcome the renal obstacle immediately, while the tolerance of the organism still persists. It is a question of life or death, and no temporizing is allowable in anuria.

Archiv f. Verdauungs-Krankheiten, Berlin.

Last indexed XLIII, page 2053.

40 (X, No. 6, December.) *Enteralgie und Kolik. Pathogenese und Behandlung des arteriosklerotischen Leibwehs (colic). Max Buch (Helsingfors).
41 *Determination of Proteolytic Power of Gastric Juice, with Description of a Modification of Hammerschlag's Method and of a New Method.—Bestimmung der proteolytischen Kraft des Magensaftes, nebst Beschreibung einer Modifikation des Hammerschlagschen Methode und einer neuen Methode. H. W. Bettman and J. H. Schroeder (Cincinnati).
42 *Ueber die Resorption von Atropin, Salol, Salizyl-säure und Rhabarber im Magen (gastric absorption of salicylic acid, rhubarb, etc.). Z. Inouye and T. K. Kashiwado (Chiba, Japan).
43 *Ueber Oesophagitis dissecans superficialis. N. Stern (Saratov).
44 Detection of Dissolved Albuminoids in Feces.—Zur Frage des Nachweises gelöster Eiweisskörper in den Fäzes. O. Simon (Carlsbad). Reply. H. Ury.

40. **Arteriosclerotic Abdominal Colic.**—Buch concludes his *monograph on* this subject with a discussion of the pathogenesis and treatment. From a material of 25 cases he preaches that arteriosclerotic colic is in reality neuralgia of the lumbar sympathetic. This fact is established by the exact similarity between the spontaneous pains and those induced by pressure on the sympathetic. Even the *irradiations of the pain* are identical, showing that the colic is, in fact, neuralgia of this portion of the *sympathetic nerve, with possible involvement* of the celiac, aortic and hypogastric plexuses. The neuralgia is due to irritation. The aortic plexus lies close to the aorta, and any inflammation of the adventitia is liable to affect the plexus also. Inflammation of the adventitia is a common occurrence in arteriosclerosis. Periarteritis is an almost constant *accompaniment* of arteriosclerosis, and the involvement of the adjacent nerve is *almost* inevitable. The superior mesenteric ganglion actually surrounds the origin of the superior mesenteric artery, and this is probably the reason why the epigastrium is so frequently the location of the arteriosclerotic pains. The sclerosis *of the* splanchnic vessels *entails, further,* hyperemia or *inflammation of the lumbar* sympathetic *as* an inevitable consequence, *either from sclerosis of the* nerve vessels or collateral congestion. The fact that arteriosclerotic colic usually comes on after physical exertion sustains this assumption. The *additional congestion in* the vessels of the plexuses, induced by exercise, superposed *on the* hyperalgesia resulting from the permanent congestion, must necessarily result in pain. A further factor in the colic is the occurrence of spasms in the vessels. It is possible the congestion may entail excessive functioning on the part *of the suprarenals.* This hypersecretion of adrenalin may induce cramps, *as is seen in experimental research* with it. Vaquez reported last year that his experiments revealed a marked tendency to cramps on the part of sclerosed vessels, and, further, that hyperplasia of the suprarenals was *unmistakably* evident in such cases. Others have reported corroborating findings in nearly a dozen cases of arteriosclerosis, the hyperplasia of the suprarenals observed indicating hyperfunction of these organs. Buch concludes that the process in *angina pectoris* is much like that in arteriosclerotic colic, and they may occur together. Treatment of arteriosclerotic colic based on these premises is remarkably effectual. Strophanthus may not only abort an attack, but may ward off recurrences. As the pain is relieved by pressure on the abdominal plexuses and aorta, massage seems to be *indicated,* combined with Swedish movements. More or less permanently favorable results were obtained in his cases by the medicinal and general treatment outlined. In some of the patients *the manifestations of the arteriosclerotic condition* were banished *for* several years. The prevailing pessimism in regard to arteriosclerosis is not justified. The cases on record of local arteriosclerosis of the extremities, from nervous influences alone, teach that the nervous system *should not be ignored in the treatment.* Both Edels and Basch have observed cases in which the blood pressure was permanently raised by nervous influences, and the latter had occasion to note the development of arteriosclerosis later in such patients. *He calls the condition "latent arteriosclerosis,"* but *Buch thinks that in reality it is one of actual sclerosis, but at this* stage is limited to the splanchnic vessels only.

41. **Determination of Digestive Activity of Gastric Juice.**—*See* The Journal, *xli, page 1229, 1903.*

42. **Absorption of Atropin, Salol, Salicylic Acid and Rhubarb in Stomach.**—Experiments on dogs and cats demonstrated that atropin and rhubarb are not absorbed in the stomach. Salol taken into the isolated stomach of dogs or injected subcutaneously was evidently absorbed, decomposed in the blood and its cleavage product, salicylic acid, eliminated in the urine. Salicylic acid was also absorbed in the stomach and appeared promptly in the urine.

43. **Superficial Dissecting Esophagitis.**—Stern describes a case of this rare affection of which he found only 4 cases recorded in the accessible literature, one from Moscow and one from Warsaw. Birch-Hirschfeld's *patient* was a hysteric woman who expelled a membranous tube 20 cm. long after three days of illness. She stated that she had vomited a similar mass several years before. He explained the affection as a pseudo-croupous inflammation of the esophagus, the process *most acute in the subepithelial* tissues, resulting in the casting off of the epithelial lining. All the patients recovered without formation of cicatricial tissue. The regeneration of the epithelium commences probably under the membrane formation.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

45 (XXX, No. 51, December 15.) *Syphilitische Erkrankungen der Circulations-Organe. von Düring (Kiel).
46 *Aetiologie und Pathogenese des Erythema *nodosum.* E. Hoffmann.
47 *Apparatus for Narcosis During Operations Under Plus Pressure. H. G. Engelken (Czerny's clinic, Heidelberg).
48 Perforation of Living Child Indispensable Under Certain Conditions.—Die Unentbehrlichkeit der Perforation des lebenden Kindes. K. Baisch.
49 **Pseudo-Sclerose.* A. Fickler.
50 Zur Kasuistik des Exsudatum pleuriticum pulsans und Exsudatum pleuriticum adiposum. K. Engel (Budapest).
51 Action of Sea Climate on Asthma.—Zur Wirkung des Seeklimas auf das Asthma. Ide (Amrun).
52 Injektions-Therapie bei Syphilis. Schnabel (Magdeburg).
53 Proposed Anti-Tuberculosis Bill in Denmark.—Entwurf, etc. Böttcher.
54 *The Russian Wounded at Chemulpo.—Zum Bericht von Dr. Wada über die russichen Verwundeten. *M. Bantschik.*

45. **Syphilitic Vascular Affections.**—This address, read by von Düring at the recent International Congress of Dermatology, deals especially with syphilitic aortitis and its two forms, the arteritis leading to partial or total *occlusion* of the vessel, and that which reduces the resistance of the walls of the vessels by cicatricial changes. The latter variety he calls Doehle-Heller's syphilitic aortitis, and *regards* it as by far the *most frequent* cause of aneurisms. It is so *characteristic* that a retrospective diagnosis of syphilis can be based on it alone

Syphilis has been demonstrated in the antecedents of from 56 to 85 per cent. of the cases of aneurism on record. He emphasizes that the syphilitic aortitis entailing aneurism has nothing to do with chronic deforming endaortitis, although they may be associated in elderly subjects. The latter may entail rupture, hematoma or dissecting aneurism, but not the true aneurism observed in syphilitics, which develops in young subjects, almost invariably before 50. The wall of the vessel in true syphilitic aortitis consists almost exclusively of a normal or thickened intima with cicatricial connective tissue, lined with endothelium. The media, the musculature and its elastic tissue have been destroyed. The wall of the artery does not offer the normal resistance, and it stretches, even under normal blood pressure, entailing the formation of an aneurism in time. Primary syphilitic lesions of the heart, gummata in the musculature, are rare and generally casual findings. Their slow development and the variability of their site lead to indefinite clinical manifestations. A history of lues and the lack of any other findings may sometimes suggest a gumma in the walls or septum as explanation of vague heart disturbances in younger subjects. Interstitial syphilitic myocarditis is more frequent and more definite. It is usually secondary to aortitis and the consecutive narrowing or occlusion of the coronary arteries. This affection of the coronaries accompanying the dilatation of the aorta and with resulting insufficiency of the aortic valves, and the sequence of cardiac insufficiency, angina pectoris and sudden death form a chain of ills for which the syphilitic aortitis is directly responsible. The benefits obtained by potassium iodid and mercury in the treatment of many affections of the circulatory organs furnish the final demonstration as to their syphilitic nature. Quincke and others have published many instances of remarkable benefit obtained with mercury and iodid in aneurisms when there was apparently nothing to indicate syphilis in the case. Runeberg has reported complete resorption of gummata in the heart walls and muscle under specific treatment. The syphilitic basis also explains the fine results attained in angina pectoris and aortitis with mercury and iodid, especially the latter, given systematically and perseveringly. Even in case of large aneurisms of the aorta and advanced gummatous or indurative myocarditis, great relief is liable to be obtained, although a complete cure can not be anticipated. True syphilitic aortitis should not be classed as arteriosclerosis, as there is no calcification of the artery.

46. **Erythema Nodosum.**—Hoffmann has invariably found an inflammation in the walls of the larger subcutaneous veins in every case of erythema nodosum in his experience. This occurs in both the idiopathic and the symptomatic forms. There is no actual thrombosis, and the process may subside without leaving appreciable traces. In one idiopathic case he found the staphylococcus albus. The inflammation always seemed to start at the forking of the vein.

47. **Plus Pressure Narcosis.**—Engelken adds another to the four modes of applying narcosis while the subject is breathing under plus pressure. His apparatus is designed to allow the anesthetist to sit in the cabinet into which the head of the subject projects. This leaves the operator and his assistants free to operate under normal conditions, with access to instruments, etc., and allows the operation to be done before spectators. The large box or chamber is made light and movable, and the ventilation is so contrived that the fumes of the anesthetic are conducted away without reaching the anesthetist. The other modes of applying narcosis under plus pressure that have been suggested are the use of a diver's helmet for the subject, or of a mask which closes mouth and nose airtight, or Kuhn's intubation, or tracheotomy. The air introduced through the tracheal tube can be under the required plus pressure, as Petersen has practically demonstrated. The details of Engelken's box and its workings are illustrated.

49. **Pseudo-Sclerosis.**—Fickler describes 2 cases which clinically presented the *picture of multiple sclerosis* of the central nervous system, but anatomically, all the signs of it were lacking. He explains the cases as a psycho-neurosis which clinically exhibited a great analogy to multiple sclerosis. Important points for differentiation are the pronounced tremor, frequently of the oscillating type, while the spastic phenomena are less striking than in true multiple sclerosis. Further points are the peculiar changes in the mentality, the emotional excitability and the eventual development of hallucinations. There are only 11 cases of this pseudo-sclerosis in the literature, to his knowledge. The subjects are usually nervous predisposed, either by heredity, syphilis, alcohol or typhoid, although in some cases no inciting cause could be determined. The first symptom is usually a weakness of the legs. The arms may also become weak, and there is sometimes numbness in the hands, strabismus, headaches, pains in the limbs, vertigo or double vision. Permanent paralysis was not observed in any instance, although the main feature of the affection as it progressed was the disturbance in the motor functions. The tremor is the most constant and striking symptom, with twitchings and sometimes disturbances in speech. The tendon reflexes were always more or less exaggerated, but the bladder and rectal functions were not affected. The affection progresses slowly but surely, death generally occurring from exhaustion or intercurrent disease. Thirteen years was the longest limit in any case, the general weakness or exacerbations entailing a fatal termination in about a year in some instances. Certain traits of hysteria may be noticeable in the clinical picture, but Strümpell protests against classing pseudo-sclerosis as hysteria.

54. **Reply to Wada's Article on the Russian Wounded.**—The Japanese surgeon's account of the surgical aid rendered the Russian wounded at Chemulpo was mentioned in these columns on page 433 of the last volume. Banschtikoff produces evidence to show the inconsistencies of the Japanese account, the omissions of certain important data from Wada's personal report, which place some of the results in another light, but he mentions with appreciation the care given the Russian wounded in the Japanese hospitals and their sincere gratitude. He adds that the alleged statements made by the Russians to the Japanese were probably due more to the zeal of the Japanese interpreter than to the Russian speakers.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed XLIII, page 167.

55 (LXXV, No. 1.) Die Mobilisierung des Duodenum nach Kocher zur Entfernung retroduodenal liegender Gallen-Steine. E. Payr (Graz).

56 Ueber die Beziehungen der Enchondrome zu den multiplen cartilaginären Exostosen. A. Läwen. 3 cases.

57 Ueber Stauungsblutungen nach Rumpf-Kompression (hemorrhage from stasis). H. Wienecke. 1 case.

58 Pyonephrose bei Verdoppelung der rechten Niere (2 kidneys on right side). A. Linck.

59 *Zur Diagnose der syphilitischen Affektionen des Pankreas. N. Trinkler (Kharkov).

60 Schuss durch das Ventrikel-Septum des Herzens. Herznaht. Heilung. (successful suture of firearm heart wound). W. Schubert [illegible]

61 Beitrag zu[illegible] gen Pylorusstenose: Pylorus-stenose [illegible] Echinococcus. Axhausen.

62 Endresulta[illegible] von Hernien, speziell der Inguinalhernien. P. Dalches (Berne).

63 Hyperemesis lactentium (Meinhard Schmidt) oder congenitale Pylorusstenose durch Operation geheilt. H. Grisson.

59. ***Syphilitic Affections* of the Pancreas.**—In Trinkler's case a gummatous *affection* of the pancreas was diagnosed as *cholelithiasis, and an operation* was performed. The patient was a very emaciated woman of 28. The organs were found to be comparatively sound—with the exception of the pancreas—and as the findings in this organ suggested gummata, the abdomen was sutured without further interference. Specific *treatment* was commenced the sixth day, and the icterus *and other symptoms* which had been ascribed to gall-stones gradually subsided.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed XLII, page 1526.

64 (LVIII, No. 4.) Zur Aetiologie und Pathogenese des Keuchhustens [illegible] ping cough). P. Reyher (Heubner [illegible]

65 Ausbruch [illegible] im Anschluss an acute eitrige O[illegible] inen Falle compliciert mit chron. Hydrocephalus internus. Haike.

66 *Human Milk in *Treatment* of Acute Catarrh of Small Intestine.—Die Frauenmilch in der Therapie des akuten Dunn-[illegible] Salge.

67 * [illegible] of Sugar in Children.—Die Assimilations-[illegible] im Kindesalter. A. Greenfield.

66. **Human Milk in Catarrh of Small Intestine.**—Salge insists on the necessity for individualizing cases of gastrointestinal disturbances in infants. What is beneficial in certain forms may be harmful in others. Catarrhal conditions in the small intestine cause a clinical picture which suggests that food rich in fat should be avoided as tending to magnify the toxic manifestations. For this reason, breast milk is almost sure to have a highly unfavorable action in such cases. He relates a number of typical experiences to sustain this view.

67. **Limit of Assimilation of Sugar in Children.**—Greenfield's tabulated statistics demonstrate that the assimilation of sugar in children is a matter of age. Neither the weight, nourishment nor certain morbid conditions affect it, but it is directly proportional to the age. By the tenth year it has attained the same limit as in adults.

Monatsschrift f. Geb. u. Gynäkologie.

Last indexed XLIII, page 168.

68 (XX, No. 4, October.) *Erfolge und Aussichten der künstlichen Frühgeburt (artificial premature delivery). Krömer.
69 Fetal Urination.—Experimentelle Beiträge zur Lehre von der Absonderung und Entleerung des Harnes im fötalen Leben. A. Kreidl und L. Mandl (Vienna).
70 Weitere Beiträge zur Technik der mechanischen Dilatation mit spezieller Berücksichtigung ihrer Erfolge in der Eklampsie-Behandlung. E. Pollak (Vienna).
71 Die Histologie des Eierstockes im Klimakterium (ovary in menopause). A. Weber (Greifswald).
72 *Anatomische Untersuchungen über den Infektionsweg bei der Genital Tuberkulose des Weibes. (Concluded.) P. Rosenstein (Königsberg).

68. **Results and Prospects of Artificial Premature Delivery.**—Kroemer reviews the experiences at Giessen and deduces the indications to be learned from them. He accepts a true conjugate diameter up to 7 cm. as indication in case of a shallow pelvis, and up to 7.5 cm. in case of a generally contracted pelvis. The bougie and spontaneous delivery are generally sufficient in case version is contraindicated. The hystereurynter with subsequent version and forceps are adapted for all flat pelves, especially for multiparæ. He thinks that the thirty-sixth week is the earliest limit for interference. The average duration of the birth, after the use of bougies, was from twenty-four to forty-eight hours, while with the hystereurynter it was only fifteen. The morbidity in 92 cases of contracted pelvis was 15.4 per cent., but in only 7.5 per cent. were the genital organs responsible for the fever. The mortality was zero. Out of the 82 children born alive, 66 were dismissed in good condition. The generally contracted, shallow pelves gave the highest mortality among the children.

72. **Genital Tuberculosis in the Female.**—Rosenstein's examination of 7 cases of tuberculous affections of the female genitalia always resulted in the discovery that the peritoneum and tubes were affected as well as the ovaries. He doubts whether a tuberculous affection of the ovaries can exist alone. He adds that tuberculosis in the tubes is always bilateral and locates first in the mucosa. Caseous degeneration occurs early in both the tubes and the ovaries. The proliferations suggesting adenoma, which are sometimes found in the tubal mucosa, do not necessarily imply a tuberculous affection. The histologic changes in the tissues of the adnexa affected by tuberculosis are so characteristic that it is unnecessary to stain for bacilli.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 431.

73 (XVIII, No. 5.) *Behandlung der Bubonen-Pest mittels intravenöser Anwendung von Yersin's Serum. L. Cairns.
74 Balneotherapy During Period Preceding and Following Puberty in Girls.—Ueber Bäderbehandlung in der Geschlechtsperiode der Menarche. E. H. Kisch (Prague-Marienbad).
75 *External Application of Salicylic Acid for Internal Affections.—Behandlung gewisser innerer Erkrankungen durch äusserliche Anwendung des Salizyls in Form von "Rheumasan." M. Behr.
77 *"Insect-Bite Icterus," and Treatment of Gallstone Affections.—Ueber Insectenstich-Ikterus, nebst Beiträgen zur Therapie der Gallenstein-, etc., Krankheiten. W. Bauermeister.
78 Hydrogen Dioxid for Cutaneous and Venereal Affections.—Ueber die Verwendung von chemisch reinen Wasserstoffsuperoxyd besonders bei Haut- und Geschlechtskrankheiten. P. Richter (Berlin).
79 Influence of Formaldehyd on Determination of Elements of Urine.—Einfluss des Formaldehyds auf den Nachweis der normalen und pathologischen Harnbestandtheile. C. Strzyzowski.

73. **Yersin's Serum in Plague.**—Cairns' experience with serum treatment was eminently favorable.

75. **Salicylic Medication Through the Skin for Internal Affections.**—Behr has applied a salicylic preparation in the form of a soft soap in 30 cases of acute rheumatism, chronic arthritis, intercostal or trigeminal neuralgia, migraine, lumbago or pleurisy. He is enthusiastic over the fine therapeutic results obtained when the preparation is massaged into the skin at the most painful points. The presence of salicylic acid in the urine was soon apparent afterward, but it did not cause the usual sweating, and the stomach was spared the irritation from the drug. He applied it once a day for from six to eight weeks, as a rule. His subjects were all tuberculous, as he is assistant in a sanatorium.

77. **"Insect-Bite Icterus."**—Bauermeister had occasion to study in his own person a severe case of icterus with general dyspepsia and gastrointestinal catarrh, preceded by urticaria. The entire syndrome developed while traveling, after a night in which he had been bitten by numerous bedbugs. His trouble proved rebellious, but finally yielded to systematic stimulation of the bile secretion. This he accomplished with salicylic acid and sodium oleate. His personal experience and clinical observation compel him to extol this combination as remarkably effectual for gallstone and similar affections. His formula is .1 gm. each of salicylic acid and the sodium oleate, to which he adds a little menthol and phenolphthalein. He took three or four of these pills morning and evening, with a glass of hot water, sipped slowly, supplemented by a hot-water bottle to the gall-bladder region for an hour or so. He is convinced that systematic use of these therapeutic measures might succeed in many cases where all others fail. He calls attention to Kuhn's recent indorsement of salicylic acid as a bile-promoting remedy. Both he and Kuhn came to this conclusion independently. (Kuhn's work in this line was reviewed in these columns on page 1095 of the last volume.)

Grèce Médicale, Syra, Greece.

80 (IV, No. 23.) *Coloration du bacille de la tuberculose. A. Gabriélidès (Constantinople).
81 *Sur 3 cas de lepra tuberculeuse traités par la méthode mixte de Unna. N. Moraites (Athens).
82 (Nos. 26-27.) *Contact Infection of Typhus. A. Panayotatou (Alexandria).
83 Report of II Panhellenic Congress, Athens, May 17-23, 1903. (Continued.)
84 (V, No. 2.) Oysters and Typhoid Fever in Constantinople. C. D. Remlinger.
85 (Nos. 3-6.) *Systematic Exploration by Large Opening in Case of Abscess in Right Lobe of Liver.—Sur 25 cas d'exploration chirurgicale méthodique des abcès du lobe droit du foie à ciel ouvert. A. P. Petridis (Alexandria).
86 (Nos. 7-10.) Sur quelques troubles de la menopause. M. N. Cairis.
87 Sur 2 cas de chylurie filarienne. C. D. Remlinger (Constantinople).
88 (Nos. 11-12.) *Relations Between Malaria and the Circulatory System. Triantaphyllides, Kanellis and others.

80. **Rapid Stain for Tubercle Bacillus.**—Gabriélidès' technic allows the whole procedure to be done in less than thirty seconds. He modifies the Ziehl formula to the following: 1 gm. fuchsin, 10 c.c. of absolute alcohol, 5 gm. of phenic acid and 40 c.c. of distilled water. He dissolves the fuchsin in the alcohol and mixes the acid with the water, then combines the two and filters. Three drops of this mixture are added to the specimen of sputum, and it is heated for twelve seconds until it steams without burning. The slide is then rinsed and decolorized with 25 per cent. nitric acid in alcohol, rinsed again and stained in methylene blue. The nitric acid decolorizes instantaneously all the elements of the sputum except the bacilli, and the whole process is so rapid that fifteen seconds are ample for the heated sputa and thirty seconds when cold.

81. **Unna's Mixed Treatment of Leprosy.**—Ichthyol internally and externally with sulphur baths and friction of the lesions with ichthyol soap formed the treatment adopted in the 3 severe cases reported. One was apparently entirely cured and the 2 others were very much improved.

82. **Contact Infection of Typhus.**—Panayotatou's patient was a physician attending some cases of typhus in the Alexandria prisons. In giving one of his patients an injection the patient pushed the syringe away and it pricked the physician

in the arm. The spot was disinfected at once, but symptoms of typhus developed after a typical incubation, and the physician succumbed.

85. Large Exploratory Incision in Case of Abscess in Liver.—Petridis gives the particulars of 25 cases of abscess in the liver in which the exact site of the lesion or its character could not be determined, or in which there was a suspicion that there might be more than one abscess. He incises with the actual cautery—seldom with the knife—from the mammary line at the seventh rib toward the axillary line for from 12 to 15 cm. or more, and resects three or four ribs for a distance of from 2 to 3 cm. He then incises the diaphragm with the actual cautery and sutures it with the soft parts to the upper lip of the original incision. Compresses are then worked under the concave surface of the liver, and the organ then can be inspected at ease, palpated and a needle inserted for exploratory puncture as indicated. He gives the details of his 25 cases, insisting especially on the fine results attained by this technic even in extremely debilitated subjects. An illustration of one case shows the gaping wound extending from the mammary line well beyond the axillary line, the incision held open with a retractor, gaping as wide as the diameter of the patient's arm. The horizontal incision along the center of the area of liver dullness allows easy examination of this organ, while the pleural cavity is scarcely infringed on. The benignity of this operation and the extensive oversight it allows over the conditions, permitting the discovery of otherwise inaccessible abscesses, commend it to such a degree that he urges physicians to advise it in the early stages so that the surgeon will be able to interfere in time. The essential features of the operation might be expressed in the term "horizontal polypleurodiaphragmotomy."

88. Relations Between Malaria and the Circulatory System.—This was one of the questions discussed at the last Panhellenic Medical Congress at Athens. Triantaphyllides of Batoum mentioned that in an experience of 12,000 cases of malaria he had encountered 67 in which there was a cardiopathy for which the malaria was apparently directly responsible. Of this number 30 were affections of the endocardium, complicated by pericarditis in 3; 26 were cases of myocarditis; 1 of aortitis and 1 of pericarditis. About 23 of the patients with an affection in the endocardium had some mitral complication, and in 16 there was ulcerative endocarditis. Mantonakis of Crete has found that the heart fibers become atrophied. Manoussos of Athens attributes merely a predisposing influence to the malaria in the production of endocarditis and phlebitis in malarial subjects. He thinks that the hypertrophy of the heart noted in chronic malaria is generally due to interference with the circulation from the enlargement of organs below. He thinks it probable that chronic aortitis may be induced by malaria, and Kanellis of Athens believes that diffuse or, at least, very extensive sclerosis of the vessels is liable to result from malarial infection. He mentions among the functional disturbances encountered in malaria slow or intermittent pulse, gallop rhythm, soft souffles, mesosystolic or mesodiastolic and reduplication of the second pulmonary sound. In very rare instances the malaria may induce an actual organic lesion in the circulatory organs, endocarditis, myocarditis, hypertrophy or dilatation of the heart.

Roussky Vratch, St. Petersburg.

Last indexed page 336.

89 (II. No. 50.) Toxic Manifestations During Development and Resorption of Effusions of Cardiac Origin.—O toxinitcheskikh yavleniyakh pri razvitii i vsasyvanii vodyanok serdetchnago proiskhozhdeniya. A. I. Kostkevitch.
90 Conditions for Development of Endogenous Suppuration in Operations on the Eyeball.—O nyekotorikh usloviyakh pri razvitiya nagnoeniya endogennago proiskhoxhdeniya pri operatziakh na glaznom yablokye. T. A. Korolkoff.
91 Advantages of Cesarean Section with Fritsch Incision in Case of Deformed Pelvis.—Kesarskoe syetchenie po povodu obshtche- i koso-suzhennago taza. M. M. Mirinoff.
92 *Spinal Analgesia in Gynecology.—Spinno-mozgoboi obezbolevanie v gynecologii. A. U. Katz.
93 Successes of Modern Cystoscopy.—Uspyekhi sovremennoi cystoscopii. N. A. Mikhaeloff.
94 (No. 52.) Ob etiologii raka (of cancer). S. I. Serkovsky.
95 *K lyetcheniu placentæ previæ centralis. B. A. Liboff.
96 (III. No. 1.) *Surgery of Biliary Passages.—K khirurgii zheltchnikh putei. S. P. Fedoroff.
97 Pathogenesis of Hypertrophic Biliary Cirrhosis of Liver.—K voprosu o patogenezi t. naz. hypertr. zheltushnikh cirrhosov pecheni. N. N. Kirikoff.
98 Bacteriologic Differentiation of Diphtheria.—Bakteriologitcheskii sposob v raspoznavaniya difterii. B. N. Tchernoschwartz.
99 *Sea Bathing for Certain Eye Affections.—O lyetchenii nyekotorikh glaznykh zabolyevanii morskimi kupaniyami. S. P. Roshtchevsky.

92. Spinal Analgesia in Gynecology.—Katz advocates spinal analgesia in gynecology when an operation is needed at once and the patient's condition renders either chloroform or ether hazardous.

95. Treatment of Central Placenta Previa.—Liboff agrees with those who advocate cesarean section as the routine treatment in threatening cases of central placenta previa. He describes 3 cases in which it was applied with the best results for both mothers and children. He thinks that a laparotomy is indicated for this serious condition to the same extent as for rupture of an extrauterine pregnancy. The only difference is that in the former case the hemorrhage is external, while in the other, it is internal.

96. Surgery of the Biliary Passages.—Fedoroff analyzes a number of instructive cases from his extensive experience and emphasizes the necessity for co-operation between the physician and the surgeon in this borderland of the affections of the biliary apparatus.

99. The Seashore for Certain Eye Affections.—Roshtchevsky urges that the building up of the general health by a stay at the seashore is a most important factor in the cure of certain affections of the eyes. Beside this, an unmistakably favorable action on the eyes from the sea bathing and from certain mineral waters is unmistakably apparent. He recommends the seashore in a temperate climate as particularly beneficial in case of trachoma.

Hygiea, Stockholm.

Last indexed XLIII, page 1430.

100 (LXVII, No. 6, June.) Om nagra former af kronisk peritonit i bukens vänstra sidoregion. B. Carlson.
101 Om difteri i Kisa 1899-1902. G. Thollander.
102 *Medical Report of the Swedish South Pole Expedition, 1901-1904.—Hälso- och sjukvarden under den svenska sydpolarexpeditionen Okt., 1901-Jan., 1904. E. Ekelöf.
103 (No. 7.) *School Myopia in Sweden.—Om förekomsten af närsynthet i Djutsholms skola jämte nagra därtill knutna betraktelser. J. Widmark.
104 Iakttagelser vid gonorré hos män. M. Möller.
105 Innervation of the Peritoneum.—En undersökning öfver nervfördelningen i främre bukväggen i synnerhet i dess peritoneum. M. Ramström.
106 *Nagra ord om den sa kallade Morbus Banti. E. Aspelin.
107 (No. 8.) Christian Loven. Obituary.
108 *Indications in Appendicitis.—Om indikationerna for operation vid appendicit samt redogorelse for a Sabbatsbergs sjukhus opererade fall. E. S. Perman.
109 *Diazo-Reaction in Pulmonary Tuberculosis.—Studier öfver diazo-reaktion vid lungtuberkulos och dess prognostika betydelse. A. Widstrand.
110 *Ibid. I. Holmgren.
111 Nagra komplikationer vid herpes zoster ophthalmicus. G. Ahlstrom (Göteborg).
112 *Chronic Arsenic Poisoning from Wall Paper and Paint and Biologic Test for Arsenic.—Om kroniska arsenikförgiftningar särdeles genom tapeter och färger samt om denn biologiska metoden att upptäcka arsenik. F. E. v. Sydow (Göteborg).

102. Report of Physician Accompanying Polar Expedition.—Ekelöf was the medical officer attached to the Swedish Antarctic expeditions of 1902 and 1903. He here gives a detailed report of sanitary and health matters, the food and other particulars, with the morbidity. The general health of the party was good for the most part. He gives a number of suggestions important for those contemplating trips to cold regions, especially in regard to prevention of scurvy.

103. School Myopia in Sweden.—Widmark tabulates the statistics from a number of schools and colleges, the proportion of shortsighted pupils constantly increasing with the school demands, as in other countries. He found that girls were more subject to myopia than boys, or at least to its severer degrees, and thinks that this should be borne in mind in selecting a life work. He found normal visual acuity in 97 per cent. of the 418 children in the Djursholms schools (1903), while the proportion was not over 79 in any of the Stockholm schools (1884).

106. Banti's Disease.—Aspelin enumerates among the diagnostic points in this disease the lack of anything in the history to explain the symptoms, their insidious onset in previously healthy or nearly healthy subjects in early middle age, and their chronic course; the moderate anemia of the secondary type without increased leucocytosis, but with increase in the mononuclear elements; the tendency to hemorrhages, and the evening temperature. He has had occasion to observe 3 cases at Helsingfors; the subjects were from 24 to 27 years old, and subjective improvement was obtained with iron, quinin, methylene blue, salicylic acid, or arsenic. One case suggested malaria, which was very prevalent in Finland at the time, but no plasmodia could be discovered in the blood, and its aspect was not that of malaria. Berg's case also coincides with the type established by Banti and Osler, and the patient, a man of 36, recovered complete health after splenectomy in 1897. Lindfors has also reported a case cured by splenectomy.

108. **Appendicitis.**—Perman tabulates the particulars of the 268 cases of appendicitis operated on during the last five years at the Sabbatsberg hospital. The results, he thinks, confirm the benefits of early operating, and of an interval operation after subsidence of even a slight attack.

109-110. **Diazo Reaction in Tuberculosis.**—Widstrand has made more than 2,000 examinations of the urine for the diazo test in 204 consumptives. Forty died in the hospital, and in 37 of these the diazo reaction was constant. In the 3 others the clinical diagnosis of pulmonary tuberculosis was not confirmed by the autopsy. In the mild or chronically latent cases the reaction was almost invariably negative. It is thus valuable for the prognosis and sometimes also for the differentiation. It is especially important when circumstances, such as frequent hemorrhages, forbid physical investigation. The positive reaction may turn the scale in favor of the assumption that the case is too far advanced for hope of a cure.

Holmgren gives excerpts from the hospital records of 158 cases of pulmonary tuberculosis, the results confirming the preceding conclusions. He adds that the stronger the reaction the nearer impending death, the interval not longer than from six to eight weeks. When the diazo is distinct but not strong, the maximal life expectancy can be placed, with great probability, at eighteen months, the average at six months. Among the patients in the third and in the advanced second stage, who presented a dubious or negative reaction, only 16 and 9 per cent., respectively, died within this average limit. A single positive reaction is sufficient for these deductions, and, as the test is so simple and easy, it should be currently adopted as a practical and valuable guide to prognosis. It enables those with a specially unfavorable outlook to be distinguished among the advanced cases and their life expectancy to be stated with greater exactness than by the physical findings alone.

112. **Chronic Arsenic Poisoning.**—Sydow reviews the literature on the subject of arsenic poisoning from wall papers, paint, etc., and advocates, as both convenient and accurate, Gosio's method of detecting the presence of arsenic by the growth of the *Penicillium brevicaule* on the suspected substance. In the presence of arsenic it disseminates a gas resembling the odor of garlic.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

Practical Pediatrics. A Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. Graetzer, Editor of the *Centralblatt fur Kinderheilkunde* and the *Excerpta Medica*. Authorized Translation, with Numerous Additions and Notes, by Herman B. Sheffield, M.D., Instructor in Diseases of Children, and Attending Pediatrist (O.P.D.). Flexible Cloth. Pp. XII-544. Price, $3.00 net. Philadelphia: F. A. Davis Co.

A Practical Treatise on Nervous Exhaustion (Neurasthenia), Its Symptoms, Nature, Sequences, Treatment. By George M. Beard, A.M., M.D., Fellow of the New York Academy of Medicine. Edited, with Notes and Additions, by A. D. Rockwell, A.M., M.D., Neurologist and Electro-therapeutist to the Flushing Hospital. Fifth Edition—Enlarged. Cloth. Pp. 288. Price, $2.00. New York: E. B. Treat & Co. 1905.

Eye, Ear, Nose and Throat Nursing. By A. Edward Davis, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate Medical School and Hospital, and Beaman Douglass, M.D., Professor of Diseases of the Nose and Throat in the New York Post-Graduate Medical School and Hospital. With 32 Illustrations. Extra Cloth. Pp. XVI-318. Price $1.25 net. Philadelphia: F. A. Davis Co.

Influence of Food Preservatives and Artificial Colors on Digestion and Health. I.—Boric Acid and Borax. (U. S. Department of Agriculture.) By H. W. Wiley, M.D., with the Collaboration of W. D. Bigelow, Chief of the Division of Foods and Others. Paper. Pp. 477. Washington: Government Printing Office. 1904.

Twenty-Third Annual Report of the State Board of Health of the State of Rhode Island for the Year Ending Dec. 31, 1900, and Including the Report on the Registration of Births, Marriages and Deaths in 1899. Cloth. Pp. 312. Providence: E. L. Freeman & Sons. 1904.

Protective Inoculation Against Asiatic Cholera. (An Experimental Study.) By Richard P. Strong, M.D. (Department of the Interior, Bureau of Government Laboratories. Biological Laboratory.) Paper. Pp. 52. Manila: Bureau of Public Printing. 1904.

Transactions of the Twenty-Sixth Annual Meeting of the American Laryngological Association held at Atlantic City, N. J., June 2, 3 and 4, 1904. Cloth. Pp. 360. New York: Published by the Association. 1904.

Twenty-Second Annual Report of the State Board of Health of Indiana for the Fiscal Year Ending Oct. 31, 1903, and Statistical Year Ending Dec. 31, 1903. Cloth. Pp. 222. Indianapolis: Wm. B. Burford. 1904.

Transactions of the State Medical Association of Texas, Thirty-sixth Annual Session. Held at Austin, Texas, April 25, 26, 27, 28 and 29, 1904. Cloth. Pp. 647. Austin: von Boeckmann-Jones Co.

Transactions of the American Surgical Association. Volume XXII. Edited by Richard H. Harte, M.D., Recorder of the Association. Cloth. Pp. 307. Philadelphia: Wm. J. Dornan. 1904.

U. S. Department of Agriculture. Twentieth Annual Report of the Bureau of Animal Industry for the Year 1903. Cloth. Pp. 618. Washington: Government Printing Office. 1904.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, N. Y. Vol. IX. For the Collegiate Year 1903-1904. Reprints.

Transactions of the New Hampshire Medical Society at the 130th Anniversary Held at Concord, May 19 and 20, 1904. Cloth Pp. 317. Concord: The Rumford Press. 1904.

Report of the Commission for the Study and Treatment of "Anemia" in Porto Rico. Dec. 1, 1904. Paper. Pp. 71. San Juan: Bureau of Printing and Supplies.

Blood, Urine, Feces and Moisture. A Book of Tests. By Henry Emerson Wetherill, M.D. Cloth. Philadelphia: George P. Pilling & Son. 1905.

NEW PATENTS.

Recent patents of interest to physicians:

777886. Eyesight testing device. Wm. H. Ely, Middletown, Conn
778127. Catamenial bandage supporter. Lura B. Greenan, Bristol, Ind.
778062. Forceps. Isaac O. Mullison, Shenandoah, Iowa.
777744. Apparatus for the manufacture of medical or like capsules Robert Paul, Vienna, Austria-Hungary.
778077. Catamenial appliance. Helen E. Scott, Baltimore, Md.
777826. Apparatus for heating or sterilizing liquids. Joseph Willmann, Chicago.
778621. Electromechanical vibratory massage apparatus. Charles Adams-Randall, New York.
778771. Electromechanical apparatus for vibratory massage Charles Adams-Randall, New York.
778308. Therapeutic electrode. George H. Day and F. J. Stein, Louisville, Ky.
778570. Invalid bed. James A. Devore, Pittsburg, and S. C. Yount, Wilkinsburg, Pa.
778644. Obstetrical device. Mary A. Easterly, Ava, Ill.
778311. Fountain siphon syringe. Linley S. Grisell, Clyde, Kan
778783. Producing a nutritive substance from blood. Julius Hofmeier, Vienna, Austria-Hungary.
778667. Blackleg vaccine and making same. Elijah M. Houghton, Detroit, Mich.
778750. Pill or tablet machine. Frank P. Kirzinger, Louisville, Ky.
778684. Surgical knife. Leopold Lewis, Strasburg, Germany.
778268. Instrument or other case. Gustave Rehmann, Newark, N. J.
779174. Syringe. Alcinous B. Jamison, New York.
779290. Making sodium acetate. Iens P. Lihme, Cleveland, Ohio
778879. Syringe. Anton Molinari, Woodridge, N. J.
779178. Liquid dropper. Louis Perotti, Newark, N. J.
778896. Pneumatic massage apparatus. Irvin Rhodes, Kalamazoo, Mich.
779144. Stethoscope. Henry G. A. I. Wieder, London, England
779338. Tube for containing surgical articles. Seward W. Williams, East Orange, N. J.

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Original Articles.

CHYLOUS ASCITES WITH EOSINOPHILIA.

AN ANALYSIS OF REPORTED CASES.*

L. NAPOLEON BOSTON, A.M., M.D.

PHILADELPHIA.

Entering on the subject of chylous ascites, it appears necessary that we consider both chylous and chyloid effusions into the peritoneal cavity, since these two forms of ascites are dependent on entirely different pathologic processes.

True chylous ascites results from the escape of chyle into the peritoneal cavity, this condition resulting from some obstruction to the chyliferous channels. A variety of pathologic conditions may be responsible for the effusion of chyle into the peritoneal cavity; and among these may be mentioned traumatism to the abdomen with rupture of the receptaculum chyli, or of the thoracic duct; obstruction to the flow of chyle through its normal channels, e. g., organic heart disease, as a result of which there is stasis of the innominate vein and venous congestion of the liver; venous thrombosis and peritoneal adhesions surrounding and compressing the thoracic duct, pressure of mediastinal tumors on the thoracic duct; abdominal tumors pressing on the receptacle for the chyle; tumors situated so as to offer obstruction to the flow of chyle in the smaller chyle branches. In this connection malignant growths and tuberculosis of any portion of the peritoneum and of the abdominal viscera may, at times, produce a true chylous ascites, yet such conditions are, as a rule, the cause of pseudochylous ascites. Theoretically, one would expect chylous ascites as a complication during the course of filariasis, although I have found reference to only three such cases.

CHYLIFORM ASCITES.

Chyliform ascites is dependent for its fat on the degeneration of epithelial cells, leucocytes and tissue débris. Such degenerated débris is found in the peritoneal fluid in cases where there are either cancerous or tuberculous nodules of the peritoneum. It is possible to have a true chylous ascites in conjunction with tuberculosis of the peritoneum, as is exemplified in the reported case under my own observation:

DISTINCTIVE FEATURES OF CHYLOUS AND PSEUDOCHYLOUS FLUIDS.

TRUE CHYLOUS EFFUSION.	PSEUDOCHYLOUS EFFUSION.
1. *The fluid consists of a fine emulsion containing but few cellular elements.*	1. A less perfect emulsion containing large numbers of epithelial cells, and granular débris which is seen to display the various stages of degeneration, and to contain few fat droplets.
2. Accumulates rapidly after *tapping.*	2. Collects more slowly, varying with the exciting pathologic cause.
3. Contains sugar.	3. Sugar absent *as a* rule.
4. The melting point of the *fat present in the fluid will be found to vary* with the melting point of the fat taken as food.	4. Fatty foods have no effect on the melting fats contained in the fluid.
5. The amount of fat present is in direct relation with the amount of fats ingested.	5. Not affected by diet.
6. On standing a distinct creamy layer does not collect on the surface of the liquid.	6. A layer may collect which varies with the number *of oil* droplets present. A heavy sediment is liable to *collect* at the bottom of the liquid.
7. Fluid obtained by paracentesis may emit the *odor* of *foods that* have been ingested.	7. Does not *emit* the *odor* of *foods.*

While true chylous fluid always results from an admixture of chyle, Pagenstecher states that the milky appearance of ascitic fluid may depend on fatty degeneration of cells derived from the serous membrane, or on an alteration in an inflammatory exudate—an admixture of mucoid substances. This observer has found true chylous ascitic fluid to display a specific gravity of 1013; to contain 3.6 per cent. of albumin; 2.87 per cent. of fat; and 0.32 per cent. of sugar.

T. V., male, colored, age 11 years, was brought to me for treatment June 11, 1902, on account of loss of flesh and strength. At this time there was no evidence of ascites, the boy's general appearance was that of malnutrition, and he was decidedly nervous. The mother gave me the history that he had been complaining for some weeks past and had lost considerable flesh. His mind was becoming enfeebled, so that when he wandered away from home he was unable to return; he also lost his way about the house, and when sent to one portion of the building would, in many instances, go aimlessly about the house.

When first seen he complained of pain and soreness in the calves of the legs, loins and the arms. Pressure near the tendinous insertions of the calf muscles elicited tenderness and there appeared to be slight edema in the frontal region. I obtained a history of the boy having eaten a large amount of sausage, much of which had not been well cooked, and in view of this fact and the above symptoms I made an examination of his blood the following day.

Blood.—The hemoglobin was found to be 68 per cent.; red cells, 4,760,000, and white *cells,* 8,000 per c.mm. A differential leucocyte count *(600 counted)* gave:

	Per cent.
Polymorphonuclear *cells*	66.0
Basophilic polynuclear	1.5
Transitionals	0.5
Lymphocytes	2.5
Small lymphocytes	1.5
Large mononuclear	2.5
Eosinophiles	25.0
Myelocytes	0.5

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the *Fifty-fifth* Annual Session, June, 1904.

During the counting of 600 leucocytes five nucleated red cells were observed (three normoblasts and two megaloblasts). The existence of a high-grade eosinophilia (25 per cent.), further supported my original suspicion that the boy was suffering from trichinosis. It was not until June 21, 1902 (nine days later), that I was able to persuade the family that an examination of the muscle tissue was necessary.

Examination of Muscle Tissue.—The skin was thoroughly cleansed with bichlorid solution and then with ether, and thoroughly injected with a 2 per cent. solution of cocain hydrochlorate. An incision two and one-half inches long was made over the tendinous insertion of the right soleus muscle, dividing all tissues down to the sheath of the tendon. The tendon was then grasped with a rat-toothed forceps and a longitudinal incision made for about one and one-half inches. The margins of the incised tendon were grasped by forceps and drawn apart by the assistant while I removed a small portion of the muscle.

This muscle tissue was at once placed in water, and later studied for the larval trichinæ, with negative results.

On June 24 (three days later) the wound appeared to be doing nicely and the boy was able to go about the room, but he complained of great weakness and shortness of breath, and of pain and tenderness over the abdomen. An examination of the blood showed red cells, 4,510,000; white cells, 11,500 per c.mm., and hemoglobin, 60 per cent. A differential leucocyte count gave: Eosinophiles, 10 per cent.; myelocytes, 2 per cent. All red cells stained pale, poikilocytosis was rather marked, and there was a slight amount of crenation of the red cells. Few microcytes and a similar number of macrocytes were to be observed.

Treatment and Results.—The patient was placed on predigested foods and tonics. July 22 the blood was again examined and gave the following: Red cells, 5,150,000, increase due to cyanosis(?); white cells, 5,600 per c.mm.; hemoglobin, 52 per cent. A differential leucocyte count gave:

	Per cent.
Polymorphonuclears	71.0
Lymphocytes (small)	13.0
Lymphocytes (large)	6.5
Large mononuclears	2.0
Eosinophiles	5.5
Transitionals	2.0

Film stained with eosin and hematoxylin showed decided decrease in the staining power of the red cells; and these cells were also greatly distorted. There were a number of microcytes and a few macrocytes present. Films stained with carbolthionin displayed well-marked punctate basophilia.

Termination of Case.—The patient continued to grow weaker and the abdominal distension became more and more marked until he was unable to retain his food. There was great pain over the abdomen and repeated paroxysmal attacks of vomiting.

A blood examination, July 26, four days later, gave hemoglobin, 66 per cent.; red cells, 3,390,000; white cells, 3,600 per c.mm. The differential leucocyte count gave eosinophiles, 7.3 per cent. During the counting of 600 leucocytes twenty nucleated red cells were found, three of which were megaloblasts. The red cells stained feebly with eosin, were greatly distorted, and a number of cells in addition to having given up their hemoglobin, were much swollen. These cells displayed little or no affinity for the eosin stain, except a narrow peripheral band of the protoplasm, which was stained of about normal intensity.

September 4, eleven days later, two days prior to death, the hemoglobin was found to have risen to 70 per cent.; the red [illegible] 3,110,000, a loss of [illegible],000 per c.mm.; the white cells, [illegible]. The stained blood presented practically the same [illegible] displayed in the previous examination, except that the [illegible] showed slightly greater affinity for the eosin stain. [illegible] of the red cells and punctate basophilia were [illegible] marked at this time, and the eosinophiles com[illegible] [illegible] cent. of the leucocytes.

[illegible] urine was examined repeatedly and was always [illegible]lly acid in reaction and to display a specific [illegible]22 and 10[illegible]. The quantity of urine for the [illegible] pints. The amount of urea and phosphates present varied greatly in different specimens, but appeared to bear no direct correlation to the severity of his condition. Albumin and sugar were never present. On microscopic examination epithelial cells, few leucocytes, granular débris, crystals of uric acid, and of calcium oxalate were found.

Postmortem Examination.—The body showed decided emaciation, rigor mortis present. The abdomen somewhat distended; there was no swelling of the extremities, and the thorax presented nothing abnormal except emaciation. On opening the thoracic cavity the viscera were found to bear the normal relation to one another.

The pericardium contained about 20 c.c. of clear straw-colored fluid. Its surface appeared as normal. The heart was found to be normal for that of a child of 10 years.

Each pleural cavity contained about 20 c.c. of straw-colored fluid. In other respects the lungs and pleura displayed no gross pathologic conditions.

Abdominal Cavity: On opening the abdominal cavity it was found to be filled with about five and one-half pints of milky fluid. The intestines were covered with lymph-like exudate. In many places the intestines were matted together and portions of the chylous exudate were entirely separated from the general peritoneal cavity by rather well-organized adhesions. It was found necessary to break these adhesions before removing the chylous fluid. The peritoneum covering the intestine, mesentery and peritoneal wall was studded with fine tubercles, the largest of which was the size of a small pin's head; and on using a handglass the entire peritoneal surface was seen to be studded with minute tubercles.

The mesenteric lymph channels were greatly distended, and in many places stood out as small white wires underneath the peritoneum. Some of these distended vessels were almost white, while others were much darker in appearance; and this variation in shade appeared to depend, for the most part, on the amount of tissue overlying the distended lymph duct.

The renal and peritoneal lymphatic plexuses were everywhere greatly enlarged, and some of them were tortuous in their course and appeared to display fine nodules, but it was very difficult to show conclusively that these nodular masses were not small tubercles. The mesenteric lymph glands were slightly enlarged and on microscopic study gave evidence of tuberculous involvement.

The receptaculum chyli was not greatly distended, although it was possible to outline it rather easily. The thoracic duct was found with some difficulty, and was patulous throughout its entire length. At no point did the peritoneal adhesions appear to obstruct the lumen of the duct.

The liver was of normal size, its capsule studded with small tubercles. On section the parenchyma appeared to be fatty, pale and displayed few small tuberculous growths. The hepatic ducts were apparently normal. The spleen was but slightly enlarged, and its capsule showed many tubercles, which on section were found to extend into the splenic pulp.

The kidneys were surrounded by plexuses of greatly distended lymph channels. On section the right kidney was somewhat cyanosed and contained two small tubercles. The left kidney was like its fellow.

The adrenals were apparently normal.

Reports of 126 cases were collected from the literature and these in conjunction with two additional cases have been tabulated as to age, sex, existing abdominal conditions, treatment and result (Table 7).

The cases have been classified also as to exciting cause, e. g., Table 1 setting forth the characteristic features, primary seat of disease, and remarks in 24 cases of chylous ascites complicating carcinoma; Table 2 describing in a like manner 17 cases resulting from tuberculosis; Table 3, 11 cases accompanying cardiovascular conditi[illegible] 4. 8 [illegible] due to disease of the liver; Ta[illegible] fol[illegible] puerperal sepsis; [illegible] sis. Table 6. 4 cas[illegible] c[illegible] where chylous

In addition

ascites followed infection with the filaria sanguinis hominis. Obstruction to the thoracic duct was observed postmortem in 11 of the cases, and the duct or receptaculum was found to be ruptured as the result of traumatism in 7 of the cases.

Sixty-one of the cases were females, 50 males, and in the remaining reports the sex was not given. A further analysis as to the number of cases occurring at the various periods in life gave 6 under 1 year of age; 3 between 1 and 5 years; 13 between 5 and 10 years; 9 between 10 and 20 years; 12 between 20 and 30 years; 34 between 30 and 50 years; and 24 after the age of 50.

TABLE NO. 1.

Cases of Chylous and Chyliform Ascites Complicating Cancer of the Abdominal Viscera, Peritoneum, or with Metastasis to Abdominal Structures.

No. 1. The peritoneal effusion was purely chylous. Thought to have been caused by pressure on the thoracic duct. The growth involved the peritoneum surrounding the thoracic duct.

No. 2, 39 years, female. Effusion chylous. Pressure on the thoracic duct the result of metastasis, and consequent enlargement of the mesenteric glands.

No. 3, 39 years, female. Character of effusion not stated. There were present infiltration of the stomach and also of the mesentery with occlusion of the lacteals.

No. 4, 56 years, female. Carcinoma of the stomach which caused questionable pressure on the thoracic duct. The peritoneum was normal, as was also the receptaculum chyli. The kidneys gave evidence of chronic interstitial nephritis.

No. 5, 52 years, female. Carcinomatous growth, probably from the pancreas, causing pressure on the thoracic duct. Peritoneum not involved.

No. 6, 57 years, female. Carcinoma of the stomach, which probably pressed on the thoracic duct. No mention is made of involvement of the peritoneum.

No. 7, 43 years, female. Cancer of the pancreas with involvement of the peritoneum. Pressure on the thoracic duct questionable.

No. 8. Cancerous involvement of the mesentery—secondary (?). There was present obstruction to the lacteals.

No. 9, 58 years, male. Malignant disease of both the peritoneum and of the pleura. Probably carcinoma.

No. 10. The lesions described point to cancer of the mesenteric portion of the peritoneum. These changes may have been secondary (?).

No. 11, 42 years, male. Metastatic carcinoma of the peritoneum. There was enlargement of the abdominal glands and thought to be pressure on the thoracic duct. The peritoneal fluid was regarded as chylous.

No. 12, 59 years, male. Cancerous infiltration of the liver, mesenteric glands and peritoneum. The peritoneal fluid was chyliform in character.

No. 13, 44 years, female. Metastatic carcinoma of the peritoneum; effusion probably chyliform.

No. 14, 50 years, female. General carcinoma of the mesentery and of the peritoneum, with questionable obstruction to the thoracic duct.

No. 15, 59 years, female. Primary carcinoma of the gall bladder, with secondary involvement of the liver. There was also cancerous involvement of the mesenteric glands.

No. 16, 67 years, female. Carcinomatous involvement of the peritoneum. The report was now clear as to pressure on the thoracic duct. The ascitic fluid was regarded as chylous.

No. 17, 39 years, male. Metastatic carcinoma of the peritoneal glands. There was pressure on the thoracic duct, as the result of glandular enlargement. The fluid was chylous.

No. 18, 35 years, female. Carcinoma involving the peritoneum. Obstruction to the thoracic duct, probably caused by adhesions. The peritoneal fluid was regarded as chylous.

No. 19, 67 years, female. Diffuse carcinoma of the peritoneum. There was no evidence of pressure on the receptaculum chyli or on the thoracic duct.

No. 20, 47 years, female. Carcinoma of the ovary with metastasis to the adjacent peritoneum.

No. 21, 39 years, female. Carcinoma of the stomach with secondary involvement of the peritoneum and contiguous structures. Occlusion of the thoracic duct.

No. 22, 53 years, male. Obstruction of the smaller chyle vessels, as the result of metastatic carcinoma of the mesentery.

No. 23. Gastric carcinoma. It was thought that the thoracic duct had become involved in the growth. Chylous fluid escaped into the peritoneal and pleural cavities.

No. 24. Cancerous growth of the abdomen. The thoracic duct was compressed by the growth and there was a chylous effusion into both the peritoneal and pleural cavities.

TABLE NO. 2.

Cases of Chylous and Chyliform Ascites Complicating Tuberculosis.

No. 1, 59 years, male. Tuberculosis of the lung and of the peritoneum. Diagnosis confirmed at autopsy.

No. 2, 59 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum. Ascitic fluid milky.

No. 3, 8 years, female. Tuberculosis of the peritoneum with a large chyliform effusion into the peritoneal sac. Tuberculous involvement of the lung found at autopsy.

No. 4, 27 years, female. There had been involvement of the glands of the neck during childhood, and later tuberculosis of the lung. At postmortem the abdominal cavity contained 3,400 c.c. of chyliform fluid. There were present extensive peritoneal adhesions.

No. 5, 33 years, female. The condition of the peritoneum appeared to be primary, and from the description given it was probably of tuberculous nature. Fluid regarded as chylous (?).

No. 6, 10 years, female. Reported as a case of tubercular peritonitis, from which 5,000 c.c. of milky fluid were removed during life.

No. 7, 39 years, female. Tuberculosis of the peritoneum. Everywhere the peritoneum was found to be studded with small tubercles. There were also extensive peritoneal adhesions.

No. 8, 12 years, female. There had been tuberculosis of the superficial glands for a long period. Miliary tuberculosis ensued and was complicated with chyliform ascites.

No. 9, 13 years, male. History of pulmonary tuberculosis, with secondary involvement of the peritoneum. Character of fluid probably chyliform.

No. 10, 7 years, female. At postmortem the peritoneum and peritoneal glands were found to be tuberculous. On section many of these glands were caseous, and contained the characteristic features of tuberculous disease. The fluid was referred to as being oily.

No. 11, 7 years. At postmortem the mesentery was found to be thickened. There were also nodules in the abdominal cavity which, on section, presented the characteristic features of tubercles.

No. 12, 59 years, male. Tuberculosis of the peritoneal sac following tuberculosis of the lung.

No. 13, 10 years, male. There was found at autopsy a chronic tuberculous process involving the peritoneum. At various tappings 6,350 c.c. of fluid were removed.

No. 14, 58 years, female. Tuberculosis of the genital tract, followed by tuberculosis of the peritoneum and of the liver. The patient was tapped four times, and 3,250 c.c. of milky fluid removed.

No. 15, 10 years, male. Autopsy disclosed tuberculosis of the peritoneum, and many adhesions. The chylous effusion was thought to have been caused by adhesion constricting the receptaculum chyli. About 1,000 c.c. of peritoneal fluid were removed at section.

No. 16, 45 years, female. There was present at autopsy miliary tuberculosis of the pleura, peritoneum and pericardium. The patient was tapped repeatedly, and a large quantity of fluid removed from the different sacs at each tapping; the specific gravity of the fluid was 1015.

No. 17, 11 years, male, negro. Tuberculosis of the peritoneum and obstruction to the lacteals. Peritoneal adhesions which divided the peritoneal cavity into many compartments. Peritoneum covered with plastic exudate. Omentum shrunken; 1,200 c.c. of chylous effusion; specific gravity, 1014. The blood showed a high-grade eosinophilia.

TABLE NO. 3.

Recorded Cases in which Chylous Ascites Was Found to Follow Valvular Heart Disease.

No. 1, 43 years, female. At autopsy there was found to be mitral and tricuspid insufficiency. The thoracic duct was obstructed at its point of opening into the vein, the result of a large fibrinous clot. The lumen of the thoracic duct was expanded and its walls thickened; the vein was also dilated at this point.

No. 2, 3 months, male. There existed congenital insufficiency of the cardiac valves.

No. 3, female. History of valvular heart disease of long duration. There was present during life stasis of the venous system.

No. 4, male. Valvular heart disease with venous stasis.

No. 5, 24 years, male. General arterial sclerosis; insufficiency of the cardiac valves. Chronic parenchymatous nephritis.

No. 6, 19 years, male. The thoracic duct was obstructed near its opening into the vein by pressure the result of a fibrinous clot surrounding vegetation which developed from the subclavian vein. At postmortem the receptaculum chyli was found to be ruptured.

No. 7, 19 years, male. Pressure on the thoracic duct by a clot occupying the subclavian vein. This clot was light in color, ragged and rather well organized. There were present, antemortem, cardiac insufficiency and venous stasis.

No. 8, 24 years, male. At autopsy the left subclavian vein was found to contain a large clot. The symptoms were those of cardiac insufficiency, with cardiac dilatation (?).

No 9, 80 years, male. The reporter of this case attributed the chylous ascites to pressure on the thoracic duct, the result of adipose tissue. From the general description of the case, and in view of the fact that there was no autopsy, I have classified it as one of cardiac insufficiency.

No. 10, male. At autopsy there was found to be embolus of the pulmonary artery. There was also a questionable statement as to cardio-vascular disease. The thoracic duct was ruptured.

No. 11, 8 years, male. Disease of mitral and aortic valves. There had been three attacks of acute rheumatism several years before.

TABLE NO. 4.

Chylous Ascites Complicating Disease of the Liver.

No. 1, male. Reported as a case of disease of the liver (?) complicated with chylous ascites.

No. 2, 28 years, female. Fatty degeneration of the liver, with fatty effusion into the peritoneal cavity.

No. 3, 47 years, male. Reported as a case of atrophic cirrhosis of the liver.

No. 4, 39 years, male. Atrophic cirrhosis of the liver. History of alcoholism.

No. 5, 38 years, male. Cirrhosis of the liver, with a history of alcoholism.

No. 6. Cirrhosis of liver with a history of alcoholism.

No. 7, 52 years, female. Cancer of the liver, probably secondary to cancer of the peritoneum.

No. 8, male. Cirrhosis of the liver; cause obscure.

TABLE NO. 5.

Recorded Cases of Chylous and Chyliform Ascites Complicating Puerperal Sepsis.

No. 1, female. There was abortion with delivery of twins. The patient did badly, and probably had puerperal sepsis. The report of the autopsy does not throw further light on the case.

No. 2, female. Following a miscarriage chylous ascites developed. More than 7 liters of chylous fluid were removed by tapping. The patient made an uninterrupted recovery.

No. 3, female. Following labor (with twins) a questionable abdominal tumor developed, which proved to be chylous ascites.

No. 4, 55 years, male. Following an unusually difficult labor there developed abdominal distension, which proved to depend on a chylous cyst. This cyst was evacuated by aspiration, and recovery followed.

No. 5, female. During the first week following delivery the mammary secretion lessened and became abnormal. Other evidences of puerperal sepsis appeared to be wanting. *The chylous effusion was* removed by aspiration and recovery followed.

No. 6, 24 years, female. Following puerperal sepsis there was abdominal distension due to chylous ascites. The abdominal cavity was drained through the vagina and five pints of chylous fluid recovered. Recovery followed.

No. 7, 33 years, female. Abortion at the third month followed by sepsis, with a temperature of 104 degrees, and a pulse of 140 per minute. Chylous fluid accumulated in the peritoneal cavity. Dr. George I. McKelway opened the peritoneal cavity through the posterior cul-de-sac, and one and one-half pints of chylous fluid escaped. Recovery.[1]

TABLE NO. 6.

Chylous Ascites the Result of Congenital Cysts.

No. 1, birth, female. A large congenital cyst ruptured, probably during birth. The chylous effusion into the peritoneal cavity is said to have been large. Fluid removed by tapping and the child made a perfect recovery.

No. 2, male. Laparotomy for removal of a large tumor which proved to be a chylous cyst. Patient made an uneventful recovery.

No. 3, 5 months, female. The patient was tapped and chylous fluid removed. Laparotomy showed the mesentery to contain several chylous cysts. The condition was probably congenital. Convalescence was soon established and recovery followed.

No. 4, 5 weeks, male. Reported as a case of lymphangioma of the peritoneum. The fluid was evacuated by aspiration, and for this reason it appears probable that this case should be considered as one of chylous ascites due to a congenital cyst. Recovery.

TABLE NO. 7.

Reference to Chylous Ascites.

No. 1, female. Obstruction of lymphatic glands and vessels. Medicine and tapping; died.

No. 2, 2 years, male. Compression of thoracic duct near subclavian vein by large tumor, producing rupture of lacteals. Tapping; died.

No. 3, 24 years, female. Childbed, rupture of chyle channels, five pints milky fluid escaped. Counter-opening; recovery.

No. 4, 39 years, male. Calculus in receptaculum chyli. Tapping; died.

No. 5, female. Effort to raise burden, with questionable rupture. Tapping.

No. 6, female. Abnormal mammary secretion during first week of puerperium. Medicine and tapping; recovery.

No. 7, female. Metrorrhagia, miscarriage, unusual exercise, 7.3 liters of chylous fluid were removed; s. g. 1022. Tapping; recovery.

No. 8, 29 years, female. Arrest of secretion of milk from mammary glands and derangement of intestinal canal. Tonics; recovery.

No. 9, female. Premature birth of twins, septic infection questionable. Found at autopsy.

No. 10, 8 years, female. Rupture of lacteal vessels; protracted illness. Tapping; recovery.

No. 11, male. Supposed to be liver disease with large chylous effusion into peritoneal cavity. Medicine; died.

No. 12, female. Abdominal tumor following pregnancy with twins. Rupture at navel; died.

No. 13, 20 years, male. Tumor of mesenteric glands, lacteals large and tortuous. Died.

No. 14, 59 years, male. Chronic bronchitis, asthma, tuberculosis. Questionable tuberculosis of peritoneum. Died.

No. 15, 59 years, male. Tuberculosis. Died.

No. 16, 28 years, female. Chronic peritonitis with fat in effusion. Fatty degeneration of liver and lipemia. Died.

No. 17, 8 years, female. Symptoms of tuberculous *peritonitis*, numerous tubercle in lungs. Died.

No. 18. Milky fluid obtained from abdomen, cause questionable.

No. 19, 62 years, female. Occlusion of thoracic duct with soapy peritoneal fluid; cause obscure.

No. 20, 19 years, male. Partial obstruction of duct near its termination due to adhesions and pressure. Died.

No. 21, 24 years, male. Left subclavian vein plugged with ragged clot. Tapping; died.

No. 22, *43 years, female.* Mitral and tricuspid insufficiency, thoracic duct plugged at outlet with pale and red fibrous coagula; walls thickened; lumen dilated with thrombi. Died.

No. 23. Rupture of chyle vessels from pressure of tumor. Died.

No. 24, 27 years, female. Scrofula, pulmonary tuberculosis, oily ascites, peritoneal adhesions, 3400 c.c. of fluid were recovered. Died.

No. 25, 2 months. Abdominal tumor, causing rupture of thoracic duct. Tapping; died.

No. 26, 30 years, female. Obstruction of thoracic duct due to infarction. Thickening of ureters, 13,500, c.c. of chylous fluid were recovered, probably by repeated tappings. Tapping; *died.*

No. 27, 50 years, male. Traumatic rupture of thoracic duct, effusion into peritoneal and pleural cavities, 20,000 c.c. of chylous fluid were recovered by a number of tappings. Tapping; died.

No. 28, 33 years, female. Primary peritonitis with hydrops adiposus and 8,000 c.c. of chylous fluid were removed. Tapping;

No. 29, 10 years, female. Tuberculous peritonitis, 5,000 c.c. of chylous fluid were recovered. Tapping; died.

No. 30, female. Chylous fluid vomited; also found in peritoneal and pleural cavities; cause obscure. *Tapping; recovery.*

No. 31, 39 years, female. Peritoneum studded with tubercles. Tapping; died.

No. 32, 39 years, female. Puncture of chyle vessels by parasites. Tapping.

No. 33, birth, female. Rupture of a congenital chylous cyst with large chylous effusion. Tapping; recovery.

No. 34, 11 years, male. Ascites following infectious diseases; cause obscure. Tapping. Died.

No. 35, 50 years, female. Rupture of mesenteric and lymphatic lacteals; cause questionable. Tapping.

No. 36, 25 years, male. Syphilis. Tapping; died.

No. 37, 12 years, female. Scrofula and miliary tuberculosis, milky fluid containing fat and the fatty acids. Died.

No. 38, 47 years, male. Cirrhosis of liver; abdominal fluid milky and contained fat. Died.

No. 39, 39 years, male. Alcoholism with cirrhosis of liver; fluid first two tappings ordinary, afterward milky and fatty. Tapping; died.

No. 40, 8 years, male. History of acute attacks of rheumatism, valvular heart disease. Tapping; died.

No. 41, 2 years 8 months, male. Syphilis. The patient had *diabetes, 13,000 c.c. of fluid* were removed. Four tappings; died.

No. 42, 55 years, male. Chylous cyst of abdomen when fluid was found following hard labor. Tapping; recovery.

No. 43, 3 months, male. Chronic peritonitis with congenital heart disease. Tapping; recovery.

No. 44, 13 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum and chylous peritoneal effusion. Tapping; died

No. 45, 61 years, male. Extensive peritoneal effusion of chylous fluid. Exciting cause undetermined. Tapping; died.

No. 46, 19 years, female. Violent exercise followed by an effusion of chylous fluid. Laparotomy; recovery.

No. 47, 39 years, male. Chylous cyst of the mesentery, which was evacuated. Laparotomy; recovery.

No. 48, 80 years, male. Stasis of the thoracic duct induced by pressure exerted from an accumulation of fatty tissue. Chylous exudate into the peritoneum recovered at postmortem. No autopsy; died.

No. 49, 47 year, male. Chylous effusion into the peritoneal cavity. *Exciting* cause questionable. History of alcoholism. Tapping.

No. 50, 38 years, male. Alcoholism, cirrhosis of liver with chylous effusion. Tapping.

No. 51, 11 years, child. Sarcoma of omentum. Died.

No. 52, 28 years, male. Traumatic rupture of receptaculum chyli. *Tapping*; died.

No. 53. Carcinoma of peritoneum with obliteration of thoracic duct as the result of pressure (?). Tapping; died.

No. 54, 39 years, female. Carcinoma of mesenteric glands, with pressure on the thoracic duct and receptaculum chyli. Tapping; died.

No. 55, 61 years, male. Chronic lymphangitis of the thoracic duct. Tapping; died.

No. 56, 39 years, female. Cancerous infiltration of the lymphatics of the stomach, intestine and mesentery. Lacteals were occluded Tapping; died.

No. 57. Hepatic cirrhosis and chronic peritonitis with obstruction of lacteals and stasis. Tapping; died.

No. 58, 52 years, female. Peritoneal carcinoma with involvement of the liver. There was obstruction of the lacteals of the mesentery. Tapping; died.

No. 59, 5 months, female. Numerous congenital (?) *cysts of the* mesentery which were excised and drained. Tapping and laparotomy; recovery.

No. 60, 42 years, female. Thought to have been either cancer or tuberculosis of the peritoneum. Tapping; died.

No. 61, 61 years, male. The renal and peritoneal lymph plexuses were *greatly* enlarged, as were *also those* of the intestine. These lymph vessels were tortuous in their course, constricted in places and displayed a varicose appearance. Tapping; died.

No. 62, 34 years, female. No autopsy, large peritoneal effusion of chylous fluid. Died.

No. 63, 54 years, male. Profuse peritoneal effusion of chylous fluid, which reappeared *rapidly after tapping.* Said to have been tapped 49 times; died.

No. 64, 31 years, female. Thought to have been a minute perforation of thoracic duct. There was also effusion *into the pleura* The *abdominal* effusion of *chylous* material was *removed and* soon reappeared after each removal. Five tappings; died.

No. 65, 61 years, female. Cause questionable, supposed *to be* rupture of lacteals as the result of traumatism, or *possibly* the condition depended *on infection through* the wound. Tapping; died

No. 66, 41, male. Exciting cause not known; fluid reappeared after tapping. Two tappings; died.

No. 67, 56 years, female. No lesion found in the *chyliferous* vessels. Gastric *cancer present and* sclerotic kidney. Two tappings; died.

No. 68, 53 years, female. Carcinoma involving the *thoracic* duct, but no sight of rupture could be detected. Laparotomy; died

No. 69, female. Cause doubtful; fluid reappeared after tapping Tapping; died.

No. 70, 57 years, female. Cancer of the stomach; thoracic duct could not be found, probably *involved in the growth.* Tapping; died.

No. 71, 21 years, female. No autopsy. Thought to *have been* caused by pressure on the thoracic duct. Tapping; died.

No. *72, 18 years, female. Angiosarcoma* of ovaries, fluid accumulated *rapidly after* removal. Three tappings and laparotomy; died.

No. 73, 46 years, male. Enlargement of the *abdomen* with obliteration of the thoracic duct. There was also chylous effusion into the pleural cavity. Tappings and medicines.

No. 74, 7 years, female. There was enlargement of the mesenteric glands, many of them showing degeneration and chalky deposits on section. Died.

No. 75, 21 years, female. Prolonged attack of chylorosis. The effusion of chylous liquid into the abdominal cavity *was thought* to be due to pressure on the lymph channels *by enlarged* spleen. Tappings and medicines; recovery.

No. 76, child. Abdominal cavity filled with milky fluid evidently derived from rupture of chyliferons vessels. No lesion of the vessels was found. Died.

No. 77, 7 years, male. Mesentery *cirrhosed* and showed many areas, which on sectioning were white and chalk-like—tubercles (?). Died.

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[1] I am not aware that Dr. McKelway has reported this case and it should be credited to him. I was his resident physician at the time of this observation, and made a chemical and microscopic study of the chylons fluid.

No. 78, 19 years, male. Fibrinous vegetations attached to intima of subclavian vein; partial obliteration of thoracic duct near its outlet; rupture of receptaculum chyli. Died.

No. 79, 24 years, male. Left subclavian and its effluent branches plugged with a light colored and ragged blood clot. No lesion of abdomen found. Tapping; died.

No. 80, 9 years, male. General health fair, no cause discovered. Twenty-eight pints of fluid were recovered from the abdominal cavity during the period of 28 days. The fluid was chylous and had a specific gravity of 1015. Tapping; under observation when reported.

No. 81, 2 years, male. Previous health good, no cause discovered. Abdominal fluid milky and contained lymph cells. Tapping; under observation when reported.

No. 82, male. Chronic lymphangitis involving the peritoneal lymph channels. Died.

No. 83, 59 years, male. Pulmonary tuberculosis, with probable involvement of the peritoneum (?). Died.

No. 84. Lesion of the thoracic duct. (I was unable to ascertain the exact nature of this lesion from an abstract.) Died.

No. 85. Chronic peritonitis with obstruction of the lacteals of the mesentery, resulting in a questionable chylous effusion. Died.

No. 86, 43 years, female. Cancer of the pancreas with cancerous involvement of the peritoneum, 1400 c.c. of chylous fluid were removed at operation. Laparotomy; died.

No. 87, male. Rupture of the thoracic duct; there was also an embolus of the pulmonary artery. Died.

No. 88, female. Chylous effusion—valvular heart disease with stasis of the vena cava.

No. 89, male. Hepatic cirrhosis with chylous effusion into the peritoneum. Died.

No. 90, male. Chylous effusion following valvular heart disease. Died.

No. 91, 54 years, female. Lymphangitis involving peritoneal vessels. Died.

No. 92, male. Questionable chylous. Tapping; died.

No. 93, 10 years, male. Chronic tubercular peritonitis with chylous effusion of 6,350 c.c. of fluid. Tapping; died.

No. 94. Obstruction to the thoracic duct of questionable origin. died.

No. 95. Cancer of the mesentery with obstruction of lacteals. died.

No. 96, 56 years, male. Cause unknown; 28,700 c.c. of fluid were recovered. Five tappings; died.

No. 97, 58 years, female. Tubercular peritonitis, tuberculosis of liver and of the genitalia; 3,250 c.c. of fluid were removed. Four tappings; died.

No. 98, 58 years, male. Malignant lymphoma of peritoneum and pleura; 17,750 c.c. of milky fluid were removed from both serous cavities. Three tappings; died.

No. 99. Malignancy of the peritoneum with chylous effusion.

No. 100. Sarcoma of the mesentery with removal of 50,000 c.c. of chyliform fluid. The S. G. 1011-1014. Four tappings; died.

No. 101, 42 years, male. Carcinoma with metastasis to the peritoneum, mesenteric glands, etc., with pressure on the thoracic duct; 9,600 c.c. of chylous fluid were removed. S. G. 1015-1017. Two tappings; died.

No. 102, 59 years, male. Carcinoma with metastasis to the lymph glands, liver and peritoneum; 400 c.c. of chyliform fluid were removed. S. G. 1020. The fats averaged .31 per cent. Section; died.

No. 103, 24 years, female. Traumatism with rupture of the chyle vessels. Died.

No. 104, 35 years, female. Chronic peritonitis, uterine fibroid with chylous effusions. Tapping; recovery.

No. 105, 35 years, female. Cancerous peritonitis; 8,500 c.c. of chylous fluid removed. Four tappings; died.

No. 106, 67 years, female. Peritonitis and general carcinomatosis; 6,000 c.c. of fluid were removed. Three tappings; died.

No. 107, 67 years, female. Chronic peritonitis with distention of the thoracic duct and chyle receptacle. Three tappings; died.

No. 108, female. Chronic peritonitis with cirrhosis of the liver. Tapping; recovery.

No. 109, 15 months, female. Chronic peritonitis. Nineteen tappings; recovered.

No. 110, 10 years, female. Tuberculosis of the peritoneum with istention of the receptaculum chyli; one gallon of fluid was reovered. Laparotomy; recovered.

No. 111, 46 years, female. Valvular heart disease with parenhymatous nephritis; 1,200 c.c. of fluid were removed. Died.

No. 112, 47 years, female. Cancer of the ovary. S. G. of fluid 011-1015. Died.

No. 113, 44 years, female. Carcinoma with metastasis to the eritoneum and large chylous effusion; 17,000 c.c. of chyliform luid were removed. S. G. 1020, containing 3.98 per cent. of fat. hree tappings; died.

No. 114, 50 years, female. Cancer of the peritoneum and mesntery; 19,000 c.c. of milky fluid were removed antemortem. Taping; died.

No. 115, 45 years, female. Miliary tuberculosis of the peritonum, pleura and pericardium, with obstruction to the chyle vesels; 10,000 liters of milky fluid were removed. S. G. 1015. Three tappings; died.

No. 116, 59 years, female. Carcinoma of the gall bladder with ancerous involvement of the mesentery and liver. S. G. 1012; the t averaged 1.15 per cent. Three tappings; died.

No. 117, 10 years, male. Enlargements of retroperitoneal glands, with pressure on the thoracic duct and a large chylous effusion. Section; died.

No. 118, 67 years, female. Carcinoma of the peritoneum with 17,500 c.c. of chylous fluid. S. G. 1020. Four tappings; died.

No. 119, 39 years, female. Gastric carcinoma with involvement of the liver, peritoneum and infiltration causing obstruction to the thoracic duct; 4,500 c.c. of fluid were removed. S. G. 1012. Tapping; died.

No. 120, 36 years, male. Carcinoma with metastasis to the retroperitoneal gland and to the mesentery with pressure on the thoracic duct; 7,300 c.c. of chylous fluid were removed. S. G. 1012. Tapping; died.

No. 121, 53 years, male. Cancer of the mesentery due to metastasis, obstruction of the smaller chyle vessels; 600 c.c. of chylous fluid were removed. Section; died.

No. 122. Gastric carcinoma with thrombosis of the venous system and resulting in obstruction to the thoracic duct with an effusion of chylous fluid into the pleura. Died.

No. 123. Carcinoma involving the thoracic duct, which was probably compressed in the mass. There was a chylous effusion into both the peritoneal and pleural cavities. Died.

No. 124, 5 weeks, male. Lymphangioma of the peritoneum; 750 c.c. of chylous fluid were removed. The specific gravity of the fluid was 1007, and it contained 4.756 per cent. of fats. Tapping; recovery.

No. 125, 35 years, male. Chylous ascites with chyluria. The patient had lived in South America and filaria were found in blood, but not in the chylous fluid. Tapping; recovery.

No. 126, 16 years, female. Chronic nephritis, with marasmus and thrombosis of the innominate veins. There was a large chylous effusion into the peritoneum. Its specific gravity was 1005. Two tappings; died.

No. 127, 11 years, male. Tuberculosis of the peritoneum and obstruction of the lacteals. Thoracic duct patulous. The fluid was walled off in many small compartments by firm and plastic adhesions. Omentum shrunken and its lacteals tortuous. Chylous effusion *1,200 c.c. at autopsy. S. G. 1014.* Medicines; died.

No. 128, 33 years, female. Puerperal sepsis with pelvic peritonitis. One and one-half pints of chylous fluid were removed from the peritoneal cavity. Specific gravity of the fluid 1014. Puncture through the vaginal wall; recovery.

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Radioactive Wool.—Cotton-wool which has been submitted to the action of radium emanation is convenient for easy distribution over the body; it may be packed in hermetically sealed jars, as it loses radioactivity very slowly, and can be sent to any distance desired. From a few milligrams of radium, according to the *Medical Age*, a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium, whose cost is so great as to interfere with its widespread use. The effects of the radium emanation and of the direct action of the radium are in all probability the same. Radioactive wool, therefore, may become a stock pharmaceutic preparation.

THE ENVIRONMENT AND VISUAL REQUIREMENTS OF RAILWAY ENGINEMEN AND FIREMEN.

PERSONAL OBSERVATIONS FROM AN ENGINE CAB.*

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MILWAUKEE, WIS.

Of the total railroad mileage of the United States (approximately 302,000 miles), nearly 13 per cent., or 39,263.9 miles,[1] are using a block system of signaling for the protection and spacing of trains. This system of controlling trains requires, in the daytime, the determination of the position of a semaphore arm, about 4 feet long by 6 inches wide, or distinguishing the color of a disc about 17 inches in diameter, displayed on a pole about 26 feet high. At night the color of a 6-inch lens, lighted by a kerosene lamp, must be observed. These must be determined by the enginemen at sufficient distance in which to control their trains. Mr. R. Quayle, superintendent of motive power of the Chicago & Northwestern Railway, kindly furnishes the following data, which are the result of some recent experiments in controlling fast trains:

> With the ordinary brake, 70 pounds train-line pressure, a six-car train running 70 miles an hour can be stopped inside of 2,000 feet, approximately 1,900 feet, and when the high-speed brake, 110 pounds train-line pressure, is used on the same train and running at the same speed, the train can be stopped in 1,450 feet.

It will be seen that a signal must be read at not much less than one-half mile (2,640 feet), as a few seconds are necessary for the engineman to shut off his steam and apply his air, and in each one of these seconds a train, traveling 70 miles an hour, is covering 88 feet.

There is no question that next to the necessary practical knowledge of his engine, the vision and color perception of enginemen is the most important.

The latest obtainable statistics of railroad accidents (June 30, 1902, from the report of the Interstate Commerce Committee),[2] gives the terrific number of 8,588 killed and 64,662 injured from June 30, 1901, to June 30, 1902. Collisions and a large percentage of derailments are the only class of accidents in which defective vision or color perception can be regarded as a causative factor. Collisions caused 617 deaths and 5,350 injuries, derailments caused 293 deaths and 2,504 injuries. There seems to be no classification of accidents up to date which gives those caused by defective vision or color perception.

During 1902, in Illinois, there were 138 derailments due to trains running against signals.

None of the writers on the visual requirements of trainmen have given the subject of their *environment* much, if any, consideration. Dr. H. B. Young's paper,[3] "The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab," was the first to do this, and suggested to me that deductions from a large series of observations made in the same environment and under the same conditions as enginemen work, would be of material value. I was governed in these experiments by the standards required in the reports adopted by the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. A careful examination of my eyes resulted in vision with either eye (without glasses) 6/V (20/15), perfect color vision and muscular balance, refraction O. D. +.50 cyl. ax. 85°, O. S. +.62 cyl. ax. 135°.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

EDITOR'S NOTE.—A portion of this article, including eight illustrations, is omitted. This will explain the absence of certain footnotes, etc. The entire article appears in the transactions of the section and in the author's reprints.

[1] Railroad Gazette, Jan. 22, 1904, p. 63.

[2] Report of Interstate Commerce Commission, 1903.

[3] Young, Dr. H. B.: The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab, Annals Ophth., January, 1904.

DAY SIGNALS.

Trainmen and enginemen on steam roads are governed in their manipulation or movement of trains very largely by signals.

Railway signaling is of two kinds, visible and audible. This paper will deal only with visible signals.

Visible signals are divided into two grand classes, fixed and moving. This division also applies to night as well as day signals. It is quite generally accepted that red designates danger, green or yellow caution, and white or green clear. This scheme usually applies to flags (Fig. 1), switch targets (Fig. 2), gates (Fig. 3) and bars, but color in block, interlocking and signal department work does not indicate much in day signaling, as practically all signals are position signals. This, however, makes the test for color vision none the less important.[4]

It is to be remembered that the function of all fixed signals, whether called block signals or by some other name, is to inform the engineman whether or not he may proceed beyond the signal, or on what conditions he may proceed, and to convey the information some seconds before it will have to be acted on. This last is a vital feature, for the essential difference between driving a horse in the street and driving a locomotive, the difference which makes costly signals necessary, is that the engine driver, controlling a heavy body moving at high speed, must have ample preliminary notice of any requirement to stop.

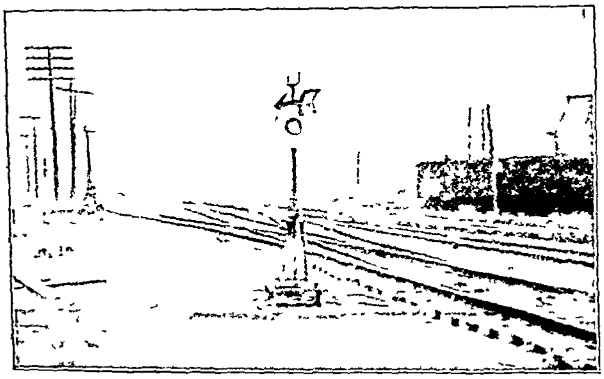

Fig. 2.—High switch target, Kansas City yards.

Day-fixed signals are whistling posts, road-crossing signs, flags, switch targets, train order signals, gates or bars, interlocking and block signals (Figs 4 and 5).

If the speed of the trains is much increased, as the experiments in Germany with the electrical road indicate, and a maximum of 100 to 120 miles an hour maintained, the semaphores will have to be much larger, to enable them to be seen at a sufficient distance to control the train, or some automatic arrangement used which will cut off the current for an obstruction signal.

NIGHT SIGNALS.

As the trainmen are almost entirely dependent on signals at night for information as to track obstructions, location, warnings and means of communication, this is the most important part of railway signaling—it should be the simplest, the surest, and should have the contrasts most marked. The colors used are red, white, green, and on some roads yellow.

The fixed night signals are white, red, yellow and green lamps or lanterns, with purple or dark blue in use for back lights at interlocking plants. Red and green fuzees are used for emergency signals and to indicate track conditions.

In all night signaling, while the color is the main indication, the location of the lights has something to do with determining the meaning of signals, i. e., a red above a white or green will indicate one thing, and a white or green above a red another; hence the necessity for perfect color perception. Yellow is used as a caution signal on roads where green is used for clear. Its usefulness is in case a glass should break in any signal, a white light would show when it should be yellow, red or green, and indicates that something is wrong.

The arrangement of night signals, green and red on the home signal and green and yellow on the distant, has been the practice on the New York, New Haven & Hartford for about two years, and is being adopted by a few other roads. The use of green for "Proceed" relieves the enginemen of the risk of taking a street or house light for an all-right signal. Yellow lights, to be always quickly distinguished from common "white" lights, must be so dark as to look a little like red, but this likeness is not found to cause any difficulty in practice. Even if a distant signal were to be taken for a stop signal, no harm would ensue.[4]

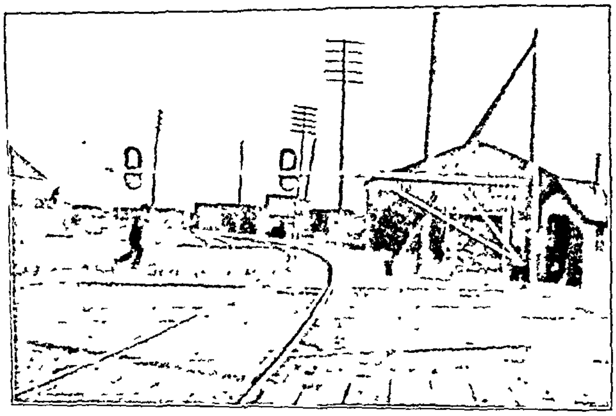

Fig. 3.—Crossing gate, C. & G. W. R. R.

Night-motion signals are made with white, red, yellow and green lanterns swung by hand.

There has been some effort made to get a position signal for night, but so far nothing satisfactory has been accomplished.

TRAIN ORDERS.

The fact that the time schedule of trains must be so closely followed and telegraphic permission must be obtained by enginemen and conductors to proceed if their train is late, also adds greatly to the safety of trains running under the block system.

Train orders written on different colored paper, which designates the class, is in use on some roads. For instance, the Baltimore & Ohio uses yellow for general, green for caution and white for clearance orders.

Some roads use signals which stand normally in the clear position, while others use those which are normally in the danger position. Both have their advantages and disadvantages; normally at danger position would seem the safest, however.

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[4] Adams, B. B.: The Block System, pp. 123, 139, 173.

THE ENGINEER.

"A few years ago the profession of engine driver was one which did not require such an amount of skill as is necessary to-day. Men who entered the ranks were brought up from the brakemen and firemen class and were rather men of superior intelligence. To-day, however, all is changed, for the reason that a higher grade of ability is demanded and high speed locomotives are infinitely intricate and demand a higher grade of scientific knowledge."

CONDITIONS ABOUT ENGINE AND RAILROAD YARDS.

Conditions existing about an engine, such as the escape of steam when an injector is used, when the whistle is blown, from leaking valves or connections, from the poorly packed piston rods of air pumps, cylinders and steam chests, will often completely envelope the engine and cab (Fig. 13). Steam and soot from the smokestack is often blown back against the cab windows, covering them with steam and dirt and making it next to impossible to see through them, to say nothing of obtaining a view of anything through the condensed steam and smoke. This is especially true in passing under the viaducts or bridges entering the railroad yards of large cities, where there are many moving engines and trains, and signals must be closely watched for (Fig. 14). In freezing weather the escaping steam is especially bad, *as the windows are coated with ice, and vision* through them is out of the question. The escape of steam inside the cab in cold weather often coats the side windows with frost and ice, but rarely the front ones, as the rush of cold air against them while in motion keeps them clear. Double glass is also used, with an air space between, which prevents their freezing. The dust raised by passing trains often coats the windows, especially if they are damp from escaping steam; the engineman's position, being on the right side, escapes most of this, however, on roads which run their trains right-handed on double tracks. The cloud raised from ploughing through snow drifts shuts off all vision for the time. Some considerable complaint is made of the drivers throwing mud and dirt on the front windows in moist weather.

THE FIREMAN.

The glare from the furnace door when the engine is stoked makes the reading of signals much more difficult. There is an iron shield above the furnace door on the engineman's side, which protects him somewhat. Many enginemen have their seat curtained off to relieve them of this glare. After looking into this glow from the position of a fireman during the time required to shovel in five or six shovels of coal, it is an utter impossibility for a novice to read a signal. There was a black scotoma before my eyes, the size of the furnace door, for fully ten minutes, and I could distinguish nothing except eccentrically. Firemen have told me they could not even see their steam gauge for several minutes after a stoking, and when one takes into consideration that from three to ten tons of coal are handled in a two to five hours' run, there is not much let up from looking into the fire-box, and when this is done daily for five or six years, or even longer, before a fireman can expect to become an engineman, it must be a good pair of eyes that can stand it and pass the required standard examination for promotion, without a rest or change.

Again quoting from Mr. Quayle's letter:

> I think you are correct in this matter—that is, it is quite difficult for a new fireman to do this, *and it would affect* one's eyes who is not accustomed to it, but the firemen who are accustomed to this kind of work have a method of shielding their eyes by the manner in which they guard them with their eyelids, and closing the eyes. They can look into a fire and distinguish things you and I could not do. The same is true of a blacksmith. Take a blacksmith and let him have a piece of iron in the fire, and when it is pretty nearly up to the temperature *of the fire, the blacksmith,* with his trained eye, can see the difference there is between the color of the iron and the color of the surrounding body of fire, while the eyes of the novice would be so affected by the brightness of the light that he would not be able to see anything in the fire. This is true with a locomotive fireman. When he gets accustomed to it, he can use his eyes advantageously to the light conditions before him.

HEADLIGHTS.

The divergent rays from the headlight make it more difficult to read signals if there is fog, snow or mist in the air; with the electric headlights, while they are of the greatest advantage in all other ways, this is much more aggravated, an immense disc of reflecting and refracting particles is directly before one, and it is almost impossible to distinguish signals through it. If these headlights were built on the same principle as the searchlights of the Navy, so that they would throw parallel rays and could be deflected to strike the track at say 100 yards' distance in front of the engine, they would be greatly improved. This effect was obtained for Dr. Young and myself on the Burlington Road by Mr. J. A. Carney,[7] the master mechanic of the Burlington Division, by making an extension to cut off the divergent rays and stopping the light down with a diaphragm. An 18-inch extension with the light stopped down to a pencil about 9 inches in diameter made a perfect light.

Mr. Mark A. Ross,[8] general manager of the Pyle-National Electric Headlight Co., in discussing Mr. Carney's paper before the Western Railway Club, said:

> I have a great many letters, too, from engineers who are *running the electric headlights, who state that they* strain their eyes more in running an engine with an oil headlight in one night than they do with the electric headlight, for the reason that they are always gazing fixedly ahead, trying to *find or pick up something, and with the electric* headlight they can sit back in the cab; they do not have to put their heads outside of the cab, and they can see anything just as they can in the daytime.

It is impossible to estimate distances accurately behind an electric headlight, or to tell how far off an oncoming train lighted with one is.

The effect on the eyes of looking into an approaching electric headlight on double tracks is very much the same as looking into a searchlight, but it is unnecessary for enginemen to look directly into the source of light.

MOTION OF THE ENGINE.

The constant jarring, swaying and rolling of an engine traveling at a high rate of speed, is another factor in making signal reading difficult.

The constant supervision of an engine takes no small part of an engineman's time and attention, and his duties are far more than sitting on the seat and watching for signals. This is especially true when there is any trouble with the various mechanisms under his care

ATMOSPHERIC CONDITIONS.

Certain atmospheric conditions are not only a sourc of great annoyance in reading signals, but often com-

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7. Carney, J. A.: The Electric Headlight, West. Railway Cl May 17, 1904.

8. Ross, Mark A.: The Electric Headlight, West. Railway Cl May 17, 1904.

pletely obscure them at a distance sufficient to control a train. Fog, snow, mist and rain take precedence in the order given, and when it is necessary for better vision to have the head out of the cab window, the impingement of the fine particles of snow, mist or rain against the eyes blinds one almost instantly. The force of the wind traveling at a high rate of speed causes the tears to flow and blurs the vision after a very short exposure.

Night signals are seen at a greater distance in these atmospheric conditions than day. The foreground and background of day signals make a great difference with their being easily seen. A sky background is the ideal (Fig. 15); the kind of day does not seem to make much difference. Signals displayed on roads running through mountainous country, and especially where there are many curves in valleys, are very hard to distinguish from the elevated positions on either side (Fig. 16). Woods stripped of their leaves or in full foliage, the proximity to buildings and bridges, all tend to make the position signals less distinct, while the cross-bars of telegraph poles are very confusing (Figs. 17, 18, 19, 20). Undoubtedly night signals are much easier read, as the contrast is so much greater, but as to their being seen any farther, or so far, atmospheric conditions being the same, is questionable.

The reflection from snow, from a body of water, from the solid green of foliage, running toward the sun when near the horizon, the shimmer in the atmosphere on hot summer days, all are features which add much to the difficulty of seeing signals.

Thus it will be seen from the factors enumerated above requiring good vision and those tending to interfere with it, the best known standard of binocular single vision and color perception is none too good, and not only must a man have this, but it must be "quick vision" (referred to by Dr. A. H. Andrews[9] and Dr. J. E. Minney[10]), for he may for an instant be able to see through some break in the interfering media, and must be able to read his signal in that instant.

There seems to be no means of overcoming the interference with vision by escaping steam. An engine may come from the roundhouse in perfect condition, but when partly through its run something occurs which allows a leak, and the enginemen have this to contend with.

EXPERIMENTS WITH LENSES.

Lenses of various colors were experimented with in looking into the fire-box from the fireman's position, and then trying to read day and night signals. The night signals were harder to see because of the glare being more intense in the surrounding darkness, the daylight relieving part of its intensity. Smoke lenses of the deeper shades allowed one to look into the fire-box without producing a scotoma before the eyes, but distinguishing signals with them and seeing the various mechanism about the cab distinctly, is out of the question; the color signals are made very indistinct. Green lenses are very good, but they blot out the red lights entirely, making one blind to red. Red lenses make the green appear dirty white, producing green blindness. Blue lenses do not cut out enough of the bright rays, and one is troubled with scotoma. A light amber lens, such as referred to in the German abstracts in the *Annals of Ophthalmology*[11] and by Dr. H. H. Seabrook,[12] as having been tried in the German army for target practice, gave a perfect result. I could look into the fire-box of the large type engines, see all parts distinctly, relieved of the blinding glare, see about the cab perfectly, climb on the seat with no spot before my eyes, and the signal lights maintain their clear definition of color, white being tinged a slight yellowish. The green light can not be seen at so great a distance as with the naked eye, but red and white can be seen an equal distance and with equal distinctness. The effect produced by watching the lights with green lenses before the eyes was rather weird, as red lights were practically blotted out, and on removing the lenses flash into view in a startling manner; the white and green lights were not affected. With red lenses the green lights were observed as white coming through dirty glass; the white lights were tinged with a faint red.

EFFECT OF THE FURNACE GLARE ON THE EYES.

As to the effect on the eyes of looking directly into the white heat of a furnace, various authorities disagree. Snell[13] says:

> There is, I think, no definite evidence that men exposed to the heat and glare of the furnaces or from the molten metal suffer materially in their eyesight, though some assert that disease of the background of the eye is occasioned in some instances.

Fuchs mentions retinitis due to a dazzling produced by gazing at sun and electric arc lights.

The following questions were sent to a number of ophthalmic surgeons who come more or less in contact with men working under these conditions:

> 1. Have you found among furnacemen, glassblowers, railroad firemen or iron mill workers ocular conditions the result of looking into the glare of furnaces, which have caused any reduction in vision? 2. If so, was the injury permanent?

Many answers were negative. A few replies from conservative men are quoted:

Dr. Ledbetter, Birmingham, Ala., reports two or three cases of chorioidal irritation among brass furnace workers.

Dr. Edward Jackson says:

> I have seen early opacity of the lens in a glassblower and several cases of inflammation and subsequent atrophy of the chorioid in blacksmiths and rolling mill workers which caused impairment of vision. In all cases the injury seemed to be permanent and directly connected with the exposure to heat.

Dr. de Schweinitz, after the examination of puddlers for incipient cataract, concluded that:

> These puddlers are apt to show a good deal of low-grade disturbance of the chorioid, the condition which is sometimes vaguely called congestion of the chorioid, the "ripe peach chorioid" of Risley's phraseology, and it seems possible to tell by ophthalmoscopic examination whether a man was a right-handed or a left-handed puddler; in other words, that eye which was more directly exposed to the glare from the furnace was the one more apt to show the condition to which I have referred.

Dr. Posey, after examination of several hundred glassblowers and men working about the furnaces in glass establishments, says:

> I am convinced that working over furnaces does produce cataracts, for I have found opacities of the lens at an age far earlier in men engaged in this work than could be accounted for by senility. In looking over my ophthalmoscopic findings

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9. Andrews, Dr. A. H.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

10. Minney, Dr. J. B.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

11. Dolganow and Klimowitsch: On Yellow and Yellow-green Glasses, Annals Ophth., October, 1901, July, 1903.

12 Seabrook, Dr. H. H.: Amber Yellow Glasses in the Examination and Treatment of the Eye, Medical News, Aug. 22, 1903.

13. Snell, Simeon: Dangerous Trades.

of the cases, I noted that I thought the chorioids were congested and the optic nerves grayer than they should be in many instances. Whether the cataracts are due to the chorioidal changes or whether they are due to the heat or light emanating from the furnaces or from the action of some rays whose existence is unknown to us at present, I can not say.

Dr. Casey A. Wood reports a case from an electric welding furnace, and says:

> In answer to your circular note, I know that I have had a number of cases of injury to the eye from looking into furnaces without the protection of glasses. In one case the injury lasted at least a year, and, so far as my information goes, was permanent.

Dr. Charles A. Oliver said:

> I have had a number of cases; not only uveal tract and retinal disturbance, but with both associated and consequent lenticular swelling and opacification. The interesting point of my findings has been that the left eye was the one which was either primarily or alone affected in right-handed men, this eye, by reason of the right arm being the governing one, being that which was situated near the fire. The injury was permanent, but never absolute, as proved by studying the eyegrounds after extraction of cataract.

Dr. Minnehan, Topeka, reports many complaints from firemen, but no permanent trouble.

Dr. Chas. H. Williams has never seen a case, but remarks: "It is easy to believe such work would aggravate such existing conditions," and Dr. Burry's[14] recent paper, "Electrical Ophthalmias," mentions several from electric welding. The reports show no permanent injury resulting from electric flashing.

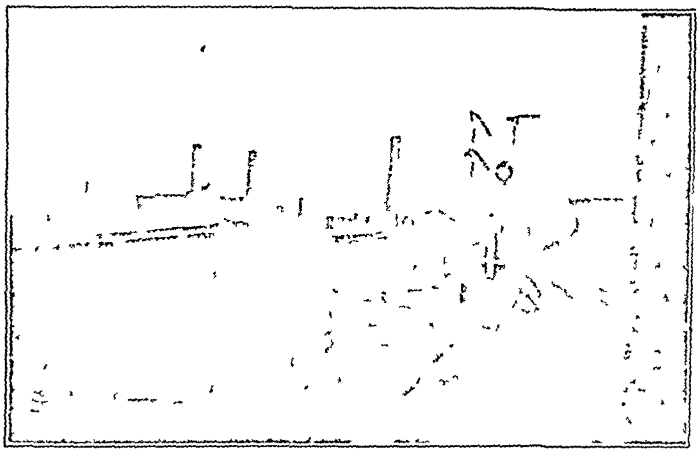

Fig. 4.—Combination disc and semaphore block, C. & N. W. R. R.

A number of firemen have volunteered the information that they had passed their entrance examination all right, but when they were re-examined after four or five years' service their left eye was not so good as the right, which is the one next to the fire-box in stoking.

MECHANICAL PROTECTION OF THE EYES.

Protection of some kind is the only method of overcoming the effect produced by the impact of snow, mist, rain and wind against the eye, and all sorts of devices are resorted to. Fully 90 per cent. of the men questioned admitted they carried some form of a protection glass for such an emergency. With lenses before my eyes I found no difficulty in facing the worst storms; the glasses did not become dimmed enough to prevent sufficient vision to read signals at any distance they could be made out with prevailing weather conditions, and the condition of the eyes was infinitely better. The larger the lenses the more perfect the protection The question of fogging, as Dr. Young[3] says, "may be dismissed if we only stop to consider that fogging only occurs when going from a cold air into a warm one," and within five seconds after contact with cold air the lenses are clear again. This point, however, is one small factor against the use of glasses by trainmen, as the engineer is unable to see distinctly about his cab for the few moments his glasses are fogged, after contact with cold, but he is equally unable to see for the same length of time as a result of coming in contact with snow, rain and wind with the naked eye. The lenses also protect the eyes from the flying coal dust in the cab.

The reflection from snow, from a body of water, the sun near the horizon and the shimmer on hot days was best overcome with the amber lenses.

CARE OF THE LAMPS IN NIGHT SIGNALING.

A very great deal depends, in night signaling, on the care taken of the lamps used, and the lenses in the spectacle frame of the semaphore arm must be kept clean. A lamp not properly trimmed or turned too high will smoke its lenses, and as a consequence the signal is dim or almost invisible. Under such conditions enginemen with defective color perception or a tendency toward color confusion can not distinguish between red, green or white; even with normal color perception the signal can not be seen at sufficient distance to control a train. The difference in the care taken of the lamps is very marked in going over 40 or 50 miles of road

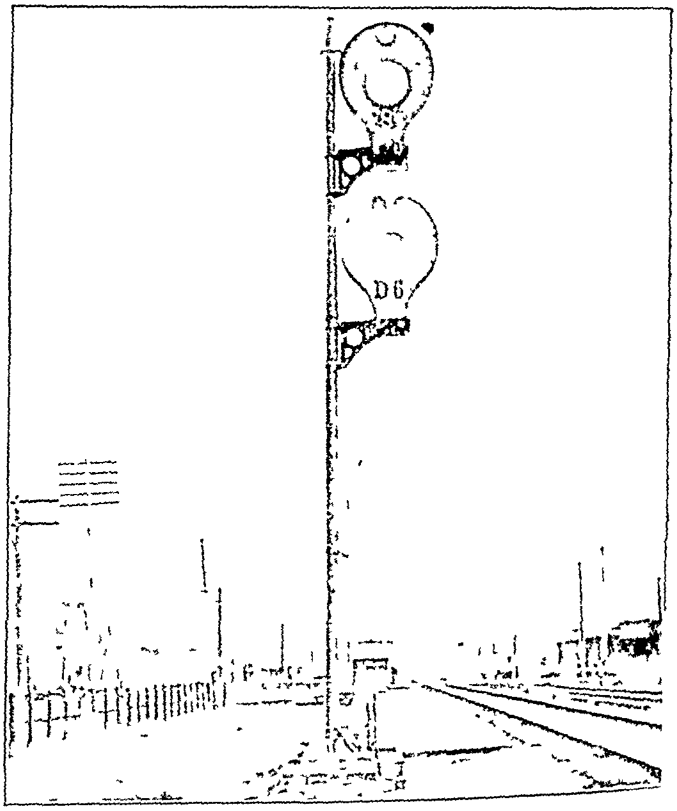

Fig 5—Disc block signal, C. & N. W. R. R.

With 20/20 (6/VI) V., under good atmospheric conditions, with good backgrounds (Fig. 14), semaphore could be distinguished at 2 to 3 miles. With night signals, under the same conditions, the white could be seen at 1 to 2 miles, the red at 1 to 1½ miles, and the green and yellow at ½ to 1 mile. When I became familiar with the location, position, and background of a signal, I could distinguish it at a greater distance, showing that the *enginemen*, knowing just where to look for the signals, can distinguish them much more quickly and at a greater distance than a novice with equally good vision.

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14. Burry, Dr. James: Electrical Ophthalmia, Chicago Medical Recorder, March, 1904.

With +1.00 D. before each eye, my vision was reduced to 20/40 (6/XII) with the Snellen test type with which I could make out day-position signals at about 2,800 feet, night signals at about 3,000 feet. Plus 1.50 gave me 20/80 (6/XXIV) vision. With these I could not make out a signal until within 200 to 500 feet.

Dr. Young[3] states:

> The lamp signals stand out better with 20/40 than with 20/20. This is explained when one considers that with 20/20 the effulgent rays can be made out. These effulgent rays give a twinkling unsteady effect, which is still farther accentuated by the jolting of the engine. With 20/40 these effulgent rays are blotted out and the lamps stand out as illuminated discs.

This was also my experience. At the much-lessened distance I could make out the lights with 20/40 (6/XII) V.; but I could make them out much more clearly and at a much greater distance with 20/20 (6/VI) V., as cited above, and again, if there were a number of lights displayed, as are usually seen in railroad yards, the proximity of these illuminated discs were very confusing.

MEDICAL REPORTS REGARDING THE STANDARD OF VISION.

There are at present four reports as to the standard of vision and hearing required by trainmen, which have been adopted by four representative medical societies of the United States, i. e., Section on Ophthalmology of the American Medical Association, the House of Delegates of the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. There is a fifth report, which I have been unable to obtain so far, adopted by the American Railway Association; the work of the committee has not been completed.

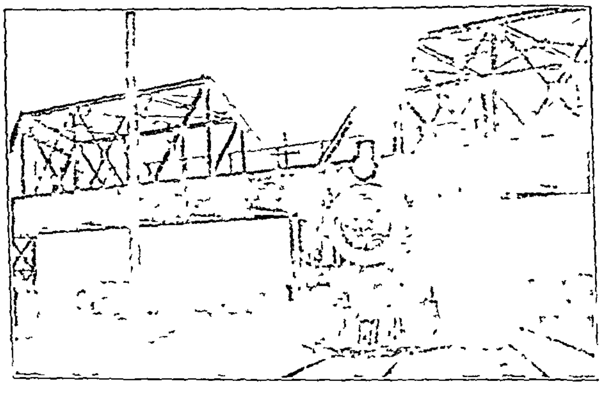

Fig 13.—Conditions about engine interfering with vision of signals.

These reports are all the result of careful and painstaking work, by men who have devoted a great deal of time to the subject. Dr William Thomson[15] was the first in the United States to inaugurate a system of practical examination of railway employes, and in 1881 this was adopted by the Pennsylvania Railroad Company. All here are familiar with the good work done by Dr. Frank Allport[16] and Dr. Chas. H. Williams.[17]

In 1901 the committee appointed three years previously by the Section on Ophthalmology[18] of the American Medical Association made their report, which was adopted by that Section. The following year the House of Delegates[19] adopted a somewhat modified report. The American Ophthalmological Society[20] report was adopted in 1901. The report of the American Academy of Railway Surgeons[21] was adopted in 1903.

EXAMINATION OF EMPLOYES.

Many roads are using a set of rules for the examination of their employes, modeled after some one of these reports, and it is my opinion that if what we wish to arrive at is uniformity in examinations among the various railroads, the medical organizations must have a uniform report. These reports vary but little in the essential features, and any one could well be adopted by all.

There is no reason why they can not be merged (as some railroads are trying to do at the present time) into one, and we could then have a uniform standard in practice as well as name; and it seems feasible that if four representative societies combine on one report the railroad officials will be much more willing to adopt the same. Then, as Dr. Chamberlain remarks: "We shall be working in harmony with others, and when a man comes off the C., B. & Q. to the Northern Pacific, he can not be employed if he has been discharged from the Q. road."

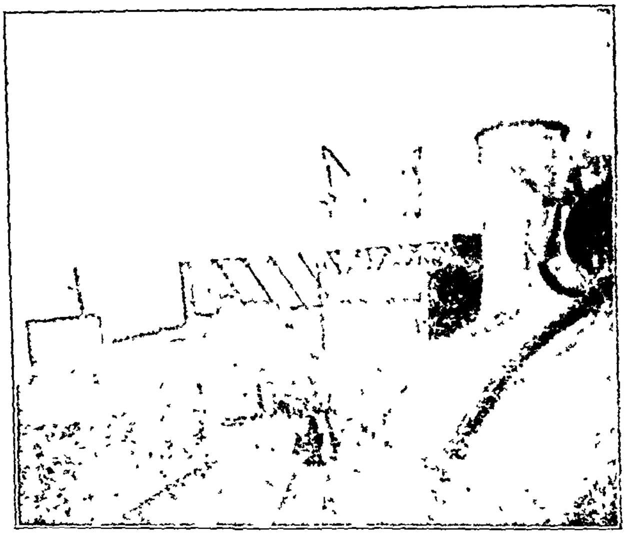

Fig 14.—Block signal with smoke background, C. & N. W. R. R.

Regarding the sections of the four reports, all agree as to the necessity of examination for vision and hearing.

In Section 2 there is a slight bone of contention, and while it must be admitted that examinations by ophthalmic surgeons would be more scientific and more nearly correct, it has been conclusively shown that examinations carried out under the instruction of an ophthalmic surgeon, by men selected by the company, who refer doubtful cases to such surgeon, have resulted in perfect satisfaction to all concerned.

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[15] Thomson, Dr. Wm: The Practical Examination of Railway Employes as to Color Blindness. Acuteness of Vision and Hearing, "Nettleship, Diseases of the Eye."

[16] Allport, Dr. Frank: The Eyes and Ears of Employes of Transportation Companies, The Journal A. M. A., Dec. 16, 1899; What Amount of Visual Defect Should Disqualify in Railroad Service, The Journal A. M. A., Oct. 13, 1900; Some Remarks Concerning the Ocular and Aural Requirements of Railroad Employes, The Journal A. M. A., Feb. 27, 1904.

[17] Williams, Dr. Chas. H.: Vision, Color-Sense and Hearing, Western Railway Club, Feb 8, 1902; The Need of a Supplementary Lantern Test for the Proper Examination of Color Perception, Boston Med and Surg Jour., July 30, 1903.

[18] Report of Section of Ophthalmology of the American Medical Association, Vision and Color-Sense of Railway Employes, Transactions Section on Ophthalmology, A. M. A., 1901.

[19] Report Adopted by House of Delegates Amer. Med. Assn. Regarding Tests of Sight and Hearing for Railway Employes, Transactions House of Delegates Amer. Med Assn., 1902

[20] Report of the Committee of the American Ophthalmological Society on Standards and Methods of Examining the Acuteness of Vision, Color-Sense and Hearing for Railway and Marine Service, Transactions Amer. Ophth. Soc., 1902.

[21] Report adopted by American Academy of Railway Surgeons, Uniform Standard for the Examination of Railway Employes, Transactions Amer. Acad. Railway Surgeons, 1903.

The reports all agree as to the standard of test types used. A word may be said here regarding uniformity of illumination of test type, inasmuch as uniformity is the watchword. We all know what a variation there is in the intensity of illumination of test charts, and this results in a very great difference in the grade of visual acuity obtained by different examiners. A transilluminated or self-luminous test cabinet is the only means of overcoming this difficulty. Such a one is described in the *Ophthalmic Record.*[22]

The section referring to the minimum requirements for acuteness of vision is the most important clause, and all the reports agree that 20/20 (6/VI) vision in each eye without glasses shall be required for entrance into service or promotion.

STANDARD OF REQUIREMENTS.

The standard of 20/20 (6/VI) V. for entrance into service for Class "A" is the least that should be required; but when it comes to promotion in service, there should be some concession made, for firemen who have stoked from five to eight years show, as a rule, some loss of vision, especially in the left eye, which improves, according to the records, after the change in environment. Dr. Williams[17] says:

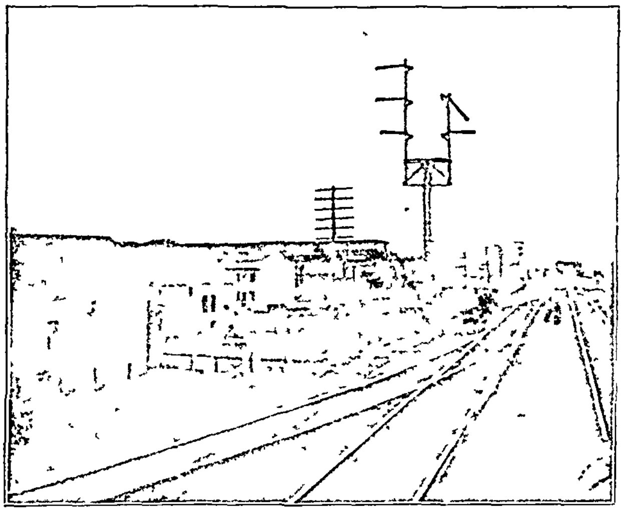

Fig. 15.—Bracket pole semaphore block, C., M. & St. P. R. R. Ideal background.

> A fireman who has worked for some six years satisfactorily as fireman comes up for promotion to engineer. He has only 20/30 vision; the rule requires 20/20, the object being that when a man first began his work as engineman or fireman you wanted to begin with a man who had normal vision. It seems to me that it is hardly fair as it works out. If he has 20/30 on re-examination you will allow him to continue to run as fireman, and if he has 20/30 on re-examination you will allow him to continue to work as engineman; then, why not allow him to be transferred from one side of the cab to the other with the same amount of vision, 20/30?

The House of Delegates' report and that of the American Ophthalmological Society require for re-examination of those in the service, "20/30 with both eyes open, without glasses," with the additional requirement that "each eye should be tested separately and the vision of each noted." Under this ruling a man with one blind eye could be retained in service, and Dr. Williams[17] brings the following argument forward in support of what he acknowledges to be a fact:

> This rule allows a man to continue running who has 20/30 of normal vision in one eye and little or none in the other. The fact of such defect is brought to the notice of the operating officer in the report of the examination, and a man with this defect would naturally be assigned to less trying runs than would be given to those with perfect sight. A standard has sometimes been recommended which provides that in this class a man must have vision of 20/30, or better, in one eye, and 20/40, or better, in the other in order to be passed as satisfactory. Suppose a man had 20/20, or normal vision, in one eye, and 20/50 in the other. This rule would reject him, which seems unfair. In such a case the man, for all practical purposes, uses only the visual impressions which he gets from his good eye, and it makes little difference to him in his work whether the poor eye has a vision of 20/50, or 20/70, or 20/40. The work he is able to do is measured by the capacity of the better eye, and he becomes so accustomed to the monocular vision that it gives him little inconvenience. It has been urged that if an engineman with only one good eye got a hot cinder in it he would be of little use. That is true; but it must be remembered that in the cab there is always a fireman with a second pair of good eyes, ready to take up the work in any such emergency until assistance can be obtained, and also, even if the engineman had two good eyes, the pain and flow of tears which would be caused by the hot cinder in one eye, would prevent a satisfactory use of the other.

In reply to this, in the first place, Dr. Williams admits that the man is not so safe a man and should be "assigned a less trying run." Further, I contend that with 20/30 in one eye, 20/40, 20/50 or even 20/70 in the other, helps the vision of the better eye. With my vision reduced to 20/40 I could read day signals perfectly at ½ mile, night signals at 4,000 feet, and with 20/80 at 500 feet and 800 feet, respectively. The fireman has about all he can attend to on a limited train without assuming an engineman's responsibility; further, there should be no excuse for using him in such an emergency, by simply changing the clause to read as it does in the other reports, or as it does in the reports from which it was evidently adopted, i. e., that of the Dutch State Railway.[23]

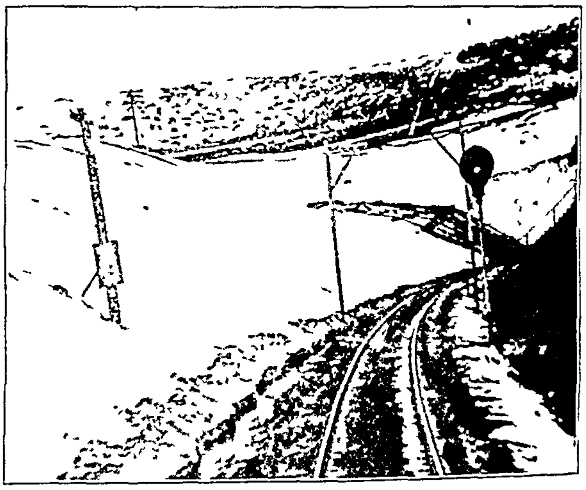

Fig. 16—Disc home signal for tunnel with bad background, U. P. R. R.

> For the post of engine driver or stoker, . . . on looking with both eyes open, visual acuteness of at least 3/4 (without glasses) . . . with each eye separately, the other eye being covered, visual acuteness of at least 1/3 (without glasses). . . .

This would fully cover the entire field of contention Dr. Allport's[24] stand against this clause is well taken:

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[22] Black, Dr. Nelson M.: Luminous Test Cabinet, Ophth. Record, April, 1904.

[23] Transactions Amer. Ophth. Soc., 1902.

[24] Allport, Dr. Frank: Some Remarks Concerning the Ocular and Aural Requirements of Railway Employes, Railway Surgeon, December, 1903.

Under Section 5, House of Delegates' report, under the requirements for re-examinations of those in the service "belonging to Class A," it says: "The employe shall possess a vision of 20/30 with both eyes open, without glasses. Each eye should also be tested separately and the vision of each noted." This opens a wide avenue of discussion. The report of the Section on Ophthalmology concerning this same point says that "Employes enumerated in Class A shall not be retained in such positions if vision sinks below 20/30 in one eye and 20/40 in the other." In other words, a reasonable standard is required of each eye, and it seems as if this must appeal to the judgment of anyone at all familiar with such work. Would anyone in this society care to travel on a train at the rate of 50 or 60 miles an hour with an engineer wearing a glass eye? I think not; the idea is untenable, and yet this is exactly what the House of Delegates' report permits, for it says that vision must be 20/30 with both eyes open. To be sure, it also says: "Each eye should be tested separately, and the vision of each noted," but it goes no further. It does not inflict any penalty in case an engineer has one blind eye. While disposed to be most liberal with the old employes of a road, and while recognizing its advisability and almost necessity if good service and freedom from labor union complications are to be encouraged, I still can not indorse the idea of testing with both eyes open, and of ignoring the condition of a man's worst eye. The idea is evidently conceived from the action of the International Congress, which met in Amsterdam in 1879, and which in formulating rules for the ocular condition of transportation employes, under the guidance of Professor Donders, repeatedly speaks of testing with "both eyes open." This was evidently recommended, because it is well known that one eye assists the other to see, and the committee desired to treat all employes with all possible clemency, but they did not in their recommendations ignore the condition of either eye.

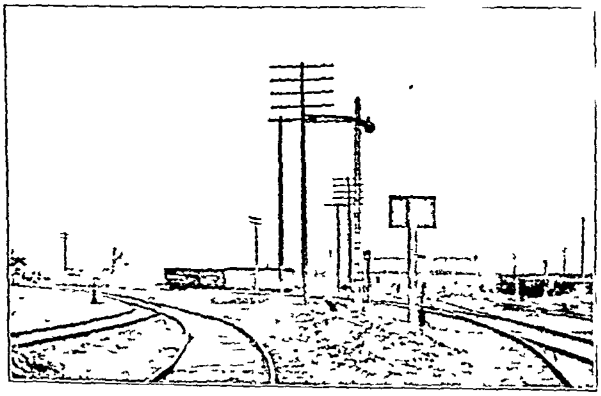

Fig 17.—Semaphores with bars of telegraph poles interfering, Kansas City yards.

Magnus and Würdemann[25] give as the minimum amount of vision for enginemen 75 per cent. of the scientific standard (6/VI), which is equal to 6/VIII, or approximately 20/XXX, "which is practically a perfect working or economic standard of vision"

Applicants for entrance into service possessing 1½ D. of hyperopia or over, should not be accepted, for the reason that they will need glasses to bring their vision up to the required standard at the age of 35 or 40.

At this point the subject of glasses must be considered, and from my experience I would heartily indorse a clause to the effect that if the vision of those examined for promotion after five years' service and those re-examined in service fell below the standard required, and such vision could be brought up to the required standard by glasses, they be promoted or retained in service. "Glasses must be worn if they are necessary to secure adequate vision." It is my unbiased opinion that protection to the eyes by lenses, more especially if needed to correct any refractive error, are of great benefit, and such opinion has been arrived at with a great deal of thought and careful study of the few objections to glasses for trainmen. The reports of Dr. J. de Lantshure[26] and Dr. J. A. Denney[27] as to the diminution of vision after long runs, I think can be easily explained. The men undoubtedly had more or less latent hyperopia, and the constant accommodative effort so tired the ciliary muscle that vision was somewhat reduced after a long run.

The color tests are of equal importance with visual acuity, and all reports agree in the use of the Holmgren wools.

The use of a lantern for a control test is a good idea, but why in the examination with the Holmgren wools is the following rule given: "No names should be mentioned in connection with any color in the above worsted tests; the tests should be based only on a comparison of colors," and with the lantern test, "have the person being examined call the names of the colors shown."

The value of the color test is to determine whether the person examined can distinguish between various shades and degrees of intensity of color, so they can be sure of a signal if its intensity is reduced by atmospheric conditions, smoky or dirty lenses, or improperly regulated illumination. It has been stated many times that men can distinguish without any hesitation between danger, caution or clear colors, displayed of varying degrees of intensity, but fall down at once if required to name the colors:

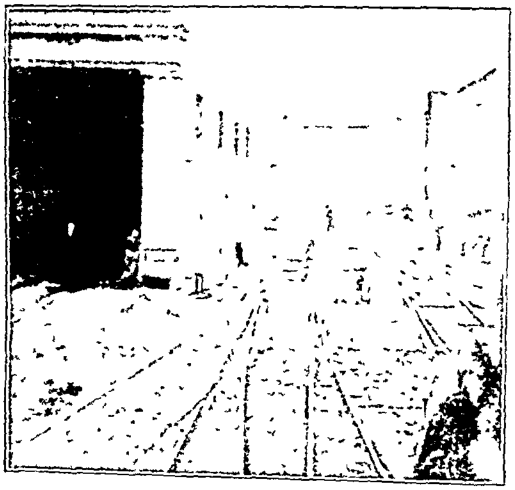

Fig. 18—Block signal with bad background, C., M. & St. P. R. R.

Again quoting Dr. Williams:[17]

> I have found personally in the last few years four cases of men who passed the worsted test without any difficulty, who picked out these colors quickly and accurately, but when they looked at a distant signal, or when they looked at the testing lantern, especially with small openings, they would often call a red light green, or a green light red; they were just as likely to mix up red and green as they were to get them right. This is due to a defect in the central portion of the retina. In such cases, when the colored object is large enough, or when it is placed near enough to the eyes, its image will extend beyond the affected parts of the retina, and its color can be at once recognized; but when the retinal image is small, as is the case with the light from a distant signal, which falls wholly within the affected area, it is easily mistaken. In order to get at the

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[25] Magnus and Würdemann: Visual Economics

[26] de Lantshure, J: Trans. Amer. Ophth. Soc, 1902.

[27] Denney, J. A.: Trans. Amer. Ophth. Soc., 1902.

fact as to whether a man is thoroughly able to recognize his signals you need both a worsted test and a lantern test, the lantern coming nearer to the actual condition of night signals, where the man has nothing except the color to guide him.

Replying to this, I do not think a person with scotoma of sufficient magnitude to pass the worsted test and fail on the lantern test would have sufficient vision to pass the required visual standard. There is no doubt the lantern test is more nearly a road test and will seem more fair to railroad men, but it should be used only as a control test, not as a substitute for the worsted test.

The sections relating to the time of re-examination are unanimous, as also are those regarding the use of liquor.

The report should be accompanied with instructions for making the various tests and the use of the apparatus required.

CONCLUSIONS.

The result of my observations has been, in brief:

1. The best known standard of visual acuity and color perception should be required of men concerned in the active operation of trains.

2. The signal systems now in vogue, while they are not perfect, are sufficiently adequate for the standard of vision required and the present speed of trains.

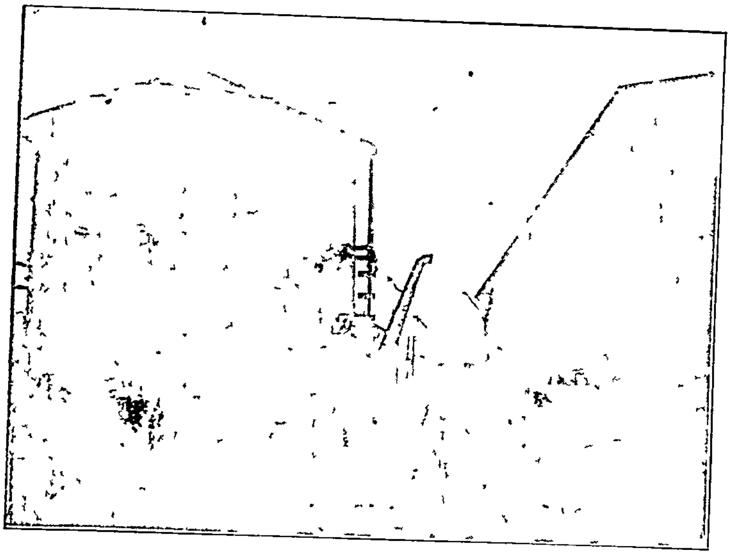

Fig. 19.—Block signal with bad foreground, C., M. & St. P. R. R.

3. Certain physical and accidental conditions about engines interfering with vision can not be overcome unless the position of the enginemen can be changed.

4. Certain atmospheric conditions interfering with vision can not be overcome; others can be mitigated or entirely relieved by the use of some form of protection to the eyes.

5. Glasses are not a hindrance to enginemen, and their use should be allowed when required to protect the eyes or to bring the vision up to required standard, but no person should be accepted into service requiring them or who will accept a plus lens of 1½ or 2 D.

6. With four reports emanating from four different sources of equal merit and standing, and all different in small details, the obtaining of perfect uniformity in examination of railway employes is out of the question, as it can not be expected that the officials of different roads will all decide on the same report.

7. Furthermore, state legislation on the subject of vision and color perception of railway employes is being seriously considered, two states, Massachusetts and Ohio, having statutes regulating this. As nearly all railroads pass through a number of states, it would be well for the societies from which these reports emanate to agree in all details, as the state laws will necessarily be based on them, and if different states have different standards, an engineman qualifying in one and not in another, with his run extending in both, would be in serious difficulty.

9,816. Sec. 1. Be it enacted by the general assent of the state of Ohio that no railroad company shall hereafter contract to employ any person in a position which requires him to distinguish form or color signals, unless such person within two years next preceding has been examined for color blindness in the distinct colors in actual use by such railroad company by some competent person employed and paid by the railroad company, and has received a certificate that he is not disqualified for such position by color blindness in the colors used by a railroad company. Every railroad company shall require such employe to be re-examined at least once within every two years at the expense of the railroad company, provided that nothing in this section shall prevent any railroad company from continuing in its employment any employe having defective sight in all cases where such defective sight can be fully remedied by the use of glasses or by other means satisfactory to the person making such examinations (As amended March 3, 1888.)

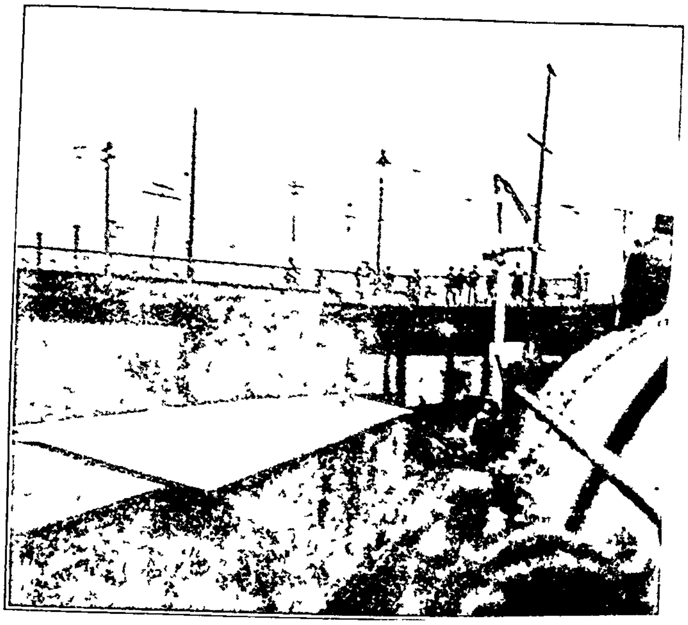

Fig. 20—Block signal with bad background, C. & N. W. R R

The law in Massachusetts is practically the same as the above.

I am greatly obliged to Dr. H. B. Young for a great many suggestions and for engine permit on a portion of the Chicago Burlington & Quincy Railway; to Dr. J. W. Chamberlain for engine permits on the Great Northern and Northern Pacific Railways; to Dr. Haldor Sneve for engine permit on the Chicago & Great Western; to Mr. A. J. Earling, president, Mr. J. N. Barr, assistant to president, Mr A. E. Manchester, superintendent motive power, and Mr. L. R. Clausen, signal engineer, of the Chicago, Milwaukee & St. Paul Railway, for engine permits and much information relating to engines and railway signaling; to Mr. W. A Gardner general manager, Mr. R. Quayle, superintendent motive power Mr. H. T. Bentley, assistant superintendent motive power, and Mr. W. E Dunham, Chicago & Northwestern Railway, for engine permit and information; to Mr. T. Lowry, president, and Mr F Pennington, general manager, the Soo Railway, for engine permit, and to Mr. A. J. Carney, master mechanic of the Chicago, Burlington & Quincy Railway, for suggestions; Mr. H L Hollister engineer Hall Signal Company, for pictures of signals and general information; Mr. Chas. Dunham, signal engineer Illinois Central Railway, for engine permit and suggestions; Mr. Mark A Ross general manager Pyle National Electric Headlight Company, for pictures and suggestions; Mr. Jos. W. Taylor, secretary Western Railway Club; Mr. F. P. Patenall, signal engineer, Mr. D D Carothers, chief engineer, and Mr. E J. Schwellenbach, train master Baltimore & Ohio Railway, for suggestions and engine permit.

DISCUSSION.

Dr. C. H. Williams, Boston—Dr. Black comes to very much the same conclusions as have been arrived at before In some of the smaller points he differs a little. As to the last thing he mentioned, in regard to legislation, it seems to me there is little use in trying to do anything in that way. The next legislature can repeal the laws made by the former one. That was done in Connecticut, and that is likely to be the fate of any legislation on the subject. In Massachusetts and Ohio the law practically amounts to nothing. In Alabama there is a little better law, but even that does not specify how the examination shall be made. In regard to the question of the lantern as a substitute for the worsted test, I have never advised it as a substitute, but simply as a supplementary test. I had a man who picked out the worsteds in the Thompson and Holmgren sets, but who in the lantern test called red green oftener than he called it red. He used tobacco to excess and had a small central scotoma for red and green, which was not large enough to cover all the retinal image of the worsteds, but the light from a distant signal came entirely within the scotoma. Men entering the service should come up to a high standard. If you have a lot of men coming into the service without any examination, and later require examinations, some of the men fail to pass, and there is trouble; but if a proper examination had been made of those men when they applied for work most of them would not have been accepted. For the post of engine driver or stoker, on looking with both eyes open, visual acuteness of at least three-fourths, without glasses; h each eye separately, the other being covered, visual acute- s of at least one-third, without glasses. This is the re- rement of the Dutch railways for re-examination. The re- rement for candidates entering the service is much more ere.

)r. J. H. Claiborne, New York City—I have never done any rk particularly along the line Dr. Black has outlined, but ny years ago there was a commission which met in Washing- ı to determine means for preventing disasters at sea, and on ıt occasion I suggested the idea of eliminating red and green tirely from the lighting of ships. I endeavored to find out ıen the system of red and green lights had been instituted. I ggested that on the starboard side a parallelogram of the ape of a star or diamond be placed, and on the other side a fferent figure, in white lights. That commission went out of ssion after having done nothing except to change the depth the water line. My paper was read and commented on and en laid aside. I have never suggested its use for railways. ıe difficulty lies in seeing the red and green colors under cer- in conditions. If we could use white light with geometrical gures, or blue, which is a rare color, it would simplify mat- rs to some extent. There should be three men on a cab— ıe to drive, one to stoke, and a third to be on watch all the me.

Dr. W. E. Lambert, New York City—There is one point not articularly emphasized, and that is the importance of having ll the employes examined by competent ophthalmologists. he method in use by most of the roads of having the man assed on by one of their own employes is not sufficient. There s no system perhaps more particular than the Pennsylvania, nd yet there came under my observation within the last year wo men who had been employed by that road who had been assed by their examiners, and who had left to go to another oad, in both of whom there was distinct color blindness. These nen should be examined by ophthalmologists. It is very diffi- ult to lay down a standard. The intelligent ophthalmologist hould be able to decide that point. There are many cases where men with 20/30 or even 20/40 vision, when due to a slight astigmatism, might be accepted. It is the cause of the poor vision which is of importance. As to the lantern, I have only found one case which showed any color blindness with it that had not been discovered by the wool tests, and that was where it was due to a central color scotoma, and in that respect the lantern test is of value.

Dr. John S. Kirkendall, Ithaca, N. Y.—There is one thing which has been omitted in this most interesting paper of Dr. Black—lack of education on the part of railroad employes as to colors. I have tried men with the wool test, and they could select the colors, but with the lantern test they failed. Failure to pass is a serious thing for these workingmen; very often a little instruction in the names of colors means a great deal. Recently I had three faithful employes fail with the lantern test. I sent them home to return in four weeks, and in the meantime told them to take some lessons. They all returned and passed a perfect examination.

Dr. H. V. Würdemann, Milwaukee—As to the points of difference between the committees, I am glad that Dr. Black and Dr. Williams have reconciled the differences that existed as to the examination of color vision. I defy any one to find a person defective so far as central scotomata and visual acuity are concerned where examination with both the woolens and Snellen tests will not reveal the defect. As Dr. Williams has allowed, I think the lantern should be a supplementary test. There are a few cases where I am convinced that the final test should be the use to which they are to put their eyes, i. e., as our final test in refraction is the experience of the patient with the glasses; so in some of our doubtful railroad cases it is necessary to examine the man on the train. Either the superintendent or one of the employes can perform that duty. If he can pass that test he is a safe man. As to legislation, I think we should have the same standard for all the states of the Union.

Dr. F. C. Todd, Minneapolis—There is one point which has not been mentioned, i. e., the possible presence of diplopia. I was consulted several years ago by an engineer who had been examined by one of the regular lay railway examiners, stating that he had discovered that at times he saw double, and that it was confusing, as he could not tell whether a signal was meant for his track or not, and could not tell on which track another train might be running. He had no fear of passing the examination, because he had perfect color vision and visual acuity of 20/20. Such cases, I presume, are rare, but it would seem that they would not be discovered by the ordinary tests made by the railway employes, and these men should certainly be retired or suspended until the diplopia is corrected.

Dr. C. F. Clark, Columbus, Ohio—These cases come to the oculist finally for examination. We have found it valuable on the Pennsylvania system to make a comparative light sense test. Dr. Rogers, I think, first instituted the plan. It is found that, irrespective of scotoma, some men have defective light sense, although with good visual acuity. Put them in a dark room at long distance, have an observer at the side of the patient to check the test, and allow them to count fingers. This method is of great value as bringing out a defective light sense that is often surprising. Such a defect is sometimes due to tobacco poisoning or to some nerve lesion.

Dr. Nelson M. Black—The question of legislation as to amount of vision and color perception required of trainmen was brought to my notice by railroad men and is something that is worrying them considerably. Regarding the lantern test for color perception, the men being examined should be required to tell whether the color shown indicates caution, danger or safety. This would be far better than naming the colors, as so many men are ignorant of the names of colors, especially the shades, and make all sorts of mistakes in attempting to name them. In examining men for the Army at the beginning of the Spanish-American War, all I had to use for color testing was paint samples, and pointing to well-defined shades, requested them to name the colors; many could not do so. When asked if there was anything a certain color resembled, as, for instance, green, they would answer readily that it was the color of grass, etc. Several superintendents have informed me that they have taken men over the roads who have failed to pass the color tests, particularly on re-examination, and found in every instance that, while the men could not pass the lantern color tests in the office, they made no mistake on the road as to what the color indicated. A high standard of vision for entrance must be required. The lessened standard for re-examination is made more for the old men, enginemen and trainmen, who came into the service without passing any examination or before examinations were required, and so the requirements must be made less than otherwise. The idea is to get men as nearly perfect as possible into service now, and later on the standard for re-examination may be raised.

Dr. Claiborne referred to the use of white lights; the majority of roads object to the use of white light in signaling entirely, as it is so easily mistaken for the lights illuminating the cities and towns the roads run through. They are now using yellow to some extent as a caution color, with green as clear. The use of blue lenses is out of the question with the kerosene lamps used to illuminate them, as they can not be distinguished at sufficient distance to be of use as a signal. With my vision reduced to one-half of normal, I could make out signals at one-half mile, and so I think enginemen with 20/40 vision should be retained in service, even if with but 20/40 in both eyes, and especially if a clause be inserted to take them from the more trying runs and give them service about the yards, where such a high standard of vision is not necessary.

THE SANATORIUM FOR INCIPIENT PULMONARY TUBERCULOSIS.

ITS AIMS, METHODS AND RESULTS.

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First Assistant Physician New Hampshire State Hospital.
CONCORD, N. H.

HOME AND SANATORIUM TREATMENT.

The open-air treatment of tuberculosis is to-day an established fact. Its curative value is proven beyond cavil. It is not an experiment. It does not mean, however, that the patient is to be restored simply by a few weeks' or months' sojourn in a "lodge in some vast wilderness" or out-of-door life at a fashionable mountain resort or a tent life in his own back yard under the simple guidance of his own sweet will. It means rather a systematic regulated life under rigid discipline and routine. It means the constant watchfulness of every symptom, not by the patient himself, for this leads to introspection and consequent defeat, but by a well-trained nurse and a physician of experience. It means expense to the individual in time, in patience and in money. To the rich or the well-to-do this may be possible in his own house. For even the most favorably circumstanced, however, the proper régime at home is difficult if not well-nigh impossible. The family or friends of the patient can not give intelligent co-operation, and in laudable attempts to help will hinder advance by over-indulgence. Well-nourished, incipient cases with fair bodily strength do not impress their friends or themselves as invalids and are easily tempted to over-exercise, injurious amusements or other undue expenditure of energy, seriously handicapping the best efforts of even a thoroughly trained medical attendant.

Even when private grounds and houses can be adapted to the requirements of an out-of-door life the patient will often find himself unable to make full use of them because of the exaggerated impression such living makes on his neighbors and friends, much to his embarrassment, and it may be to the serious detriment to his present or future business interests. We live too close to the radiator in our northern homes to give intelligent appreciation to the man sitting on his veranda wrapped in rugs and reading his morning paper with the mercury at zero, even though later in the day we meet that man in office or store. Such things can not fail to provoke unwarranted remarks until we have been more liberally educated as to the value of oxygen and good red blood.

In such sanatoria as exist to-day the patient can find most congenial surroundings and agreeable companionship among persons of his own social class. He readily enters into the routine to the observation of which he is helped by the example of his fellows. He is stimulated by the spirit of hope which is everywhere manifest, and by the sight of others as ill or worse than himself steadily improving and returning to their work restored.

To be sure, all do not get well; some he sees slowly decline, occasionally some one dies, but these are exceptional cases and in spite of them the spirit of hopefulness is dominant and an inspiration to each to put forth his best efforts toward recovery. The medical supervision is here such as it is not possible to provide in the patient's home. A hospital with properly trained physicians and nurses, with the appliances and equipment for all details of treatment and all possible contingencies, is to-day recognized as the only rational method of treating the vast majority of diseases. Similarly equipped sanatoria are to-day recognized as indispensable to the curative treatment of tuberculosis.

STATE SANATORIA FOR CONSUMPTIVE POOR.

It is now everywhere conceded that it is the duty of the state to take a hand in this crusade against man's most insidious enemy by the education of the masses in hygiene, the enforcement of judicious sanitary laws and the provision of sanatoria for the treatment of the poorer people who form so large a percentage of her citizens, and for the protection and fostering care of whom she is responsible. Many countries abroad and several states in the United States and Canada have opened such sanatoria. That established at Rutland, Mass., has been in successful operation since 1898 and was the first institution of the kind supported by the state in America. New York has erected a state sanatorium at Raybrook in the Adirondacks and other states, among them Maine, Vermont, Rhode Island, Connecticut, New Jersey, Pennsylvania, Maryland, Louisiana, Minnesota and Ohio, have taken active measures for the erection and opening of similar institutions. The establishment of a state sanatorium for the treatment of tuberculosis in the state of New Hampshire, so ably discussed and warmly advocated by the commission of 1901, and subsequently endorsed by legislative action, let us hope, is soon to be accomplished.

The functions of such a sanatorium should be not only curative, but educational. It should aim to so instruct its patients that they may go from it as missionaries of hygiene, that they may instruct their families in the sanitary conduct of home life, and by their personal example help in bringing about much needed reform in the hygiene of the home. It should afford opportunity for health officers and physicians to study the sanitation of tuberculosis and should be equipped for the scientific study of the tuberculosis question in all its phases.

REQUIREMENTS FOR A STATE SANATORIUM.

Location.—The site selected for a sanatorium should be at an elevation of from 1,000 feet to 1,500 feet above sea level, and should contain from 200 to 500 acres, according to the number of patients it may be planned to accommodate, and should be on dry, porous soil. That part on which the buildings are to be located should be protected on the north from the prevailing winds, and should be open and gradually sloping toward the south, permitting exposure to the largest possible amount of sunshine. There should be sufficient tillable land to provide for the needs of the institution, and ample pasturage for cattle. The location should be near enough to a railroad to be readily reached by patients and to facilitate the handling of supplies. The building should be sufficiently remote from a public highway as to avoid contamination of the air by dust. Proper attention must be given to the presence of an abundant water supply from a source above suspicion and to efficient drainage.

Buildings.—These should consist of a central block, containing administrative building, store-house, kitchen, laundry and power-house. Grouped about this administrative block should be pavilions for the patients, including an infirmary for each sex, congregate dining-room and wards, accommodating from twelve to twenty patients each. The buildings should be connected by covered corridors, should be heated from a central plant, and lighted by electricity. The bathing and sanitary accommodations should be of the most approved pattern. The wards should be so built as to receive the greatest possible amount of direct sunlight, and there should be an allowance of 2,000 cubic feet of air space for each patient. Such ventilation should be provided as will change this air several times an hour. There should be ample accommodation of wide verandas with a southern exposure. The sexes should be separated by the administrative block. Inexpensive shacks opened on three sides, of sufficient size to hold ten beds, and furnished with a dressing-room containing lockers and bathing facilities should be provided for sleeping in the open air. There should be a nurses' home at a distance of several hundred feet from the other buildings. A disinfecting plant and crematory for sputum, etc., should be provided. Laboratories for chemical and research work should be provided in connection with the administrative group or in a separate structure.

The outlook from the infirmaries and wards should be unobstructed by buildings, and the site should be so chosen that the views may be pleasing and restful to the patient.

In addition to the usual farm buildings, especial attention should be given to the erection of sanitary cow barns, and every facility provided for the cleanly collection of the milk and for its proper cooling. Patients should not have access to the cow barns or pastures.

Grounds.—The grounds about the building should be laid out with carefully graded walks, that the earliest exercise may be graduated and readily adapted to the patient's strength. Frequent seats and resting places should be provided where the patient may rest sheltered from the wind or direct rays of the sun. There should be an abundance of shrubs and flowering plants, which will not only be a source of pleasure to the patients, but the care of which may be made a means of employment and interest to those who are sufficiently convalescent to be benefited by some light work. On the well-sodded lawns such out-of-door amusements may be allowed as do not call for too active exercise, and here such games as lawn-bowls, croquet, archery, tether-ball, quoits, etc., may be enjoyed when prescribed by the physician.

ADMISSION OF PATIENTS.

The sanatorium being designed for the treatment of incipient cases only, it is of vital importance to the success of the undertaking that none but suitable cases be received. There should be two or three examining physicians appointed in each county to whom applicants for admission should be sent for physical examination. The reports on such cases as are found suitable for admission should be sent to the superintendent of the sanatorium and placed on file. As rapidly as vacancies occur these patients should be admitted in the order in which the reports from the examining physicians have been received. No patient should be retained in the sanatorium who is found, on further observation, to be unsuitable for treatment. Those cases should be excluded which have intestinal, renal or joint complications; a temperature running above 103 F., active laryngeal tuberculosis; extensive consolidation in both lungs; cavities, with constitutional disturbances, excessive in proportion to the area of lung involved. The favorable cases are those with slight constitutional disturbance and fair nutrition; pleuritic cases; cases beginning with hemoptysis without constitutional impairment; incipient cases. These are the classes of patients received by Dr. Trudeau at the Adirondack Cottage Sanatorium.

CLASSIFICATION OF PATIENTS.

For best carrying out the treatment and for the regulation of routine the patients should be classified according to their physical condition as follows:

1. Infirmary cases, including those with active lesions, the new patient under preliminary observation, and those suffering from intercurrent affections and exacerbations of temperature, hemorrhage or other incident of the disease.
2. Patients not on exercise, but who may be allowed some association with other patients.
3. Patients on limited exercise.
4. Patients who are sufficiently convalescent to be allowed full exercise and who are capable of performing some light occupation.

So far as possible this classification should be observed in the housing of the patients. Too free intercourse between the patients whose activity is restricted and those in the free exercise class creates an unreasoning and unreasonable discontent among the former, disarranges the discipline of the sanatorium and is a bar to progress in treatment.

The lines on which classification are drawn and the rules governing each class should be made so far as possible with a view to the patient's comfort and happiness, and a spirit of kindliness should prevail in all our dealings with them, but the classification must be rigidly adhered to and the rules strictly enforced. The whole environment should be made cheerful and the patient brought to have an interest both in his own welfare and in the best interests of his neighbors, but with the mutual understanding that the ultimate good to all concerned can be attained only by a careful observance of the discipline by every individual.

GENERAL PLAN OF TREATMENT.

In the practical application of the treatment each case must be considered separately, and the methods followed be adapted in a large measure to the needs of the individual, as determined by a rigid physical examination and a careful observation for several days under the care of a trained nurse (one trained for this particular work). Every patient on admission should, then, be thoroughly observed and the details of his treatment carefully formulated that he may follow a carefully prescribed course from the beginning.

The following general plan of treatment is subject to such individual modifications as may be from time to time judged to be desirable.

1. *Rest.*—The recumbent or semi-recumbent position and bodily and mental repose must be insisted on so long as the rectal temperature remains above 100 degrees F. All things which have a tendency to raise the pulse rate above 100 must be forbidden. At times mental rest must be absolute. At others a little light

reading, a game of chess, of cards or other quiet pastime may be enjoyed. The effect of all these things must be watched, and everything denied which is followed by any undesirable result. We must guard against too long continued or exciting conversation, tiresome visiting with friends, etc. It is the careful, judicious regulation of these little things that make for success in our management of the case.

The patient may be in bed or in a reclining chair. His position should be changed at intervals of an hour. If his condition is such that he can be dressed and use a reclining or steamer chair, he should get up and walk eight or ten paces every hour.

2. *Open Air.*—The patient must be in the open air as many hours as possible. He should average eight hours out of doors every day; in summer ten hours may easily be thus spent, in winter often not more than six; but at all seasons his attempt must be to attain the maximum in this regard. When possible, he should sleep in the open air also, and if he sleeps indoors it must be with windows open wide and the bed screened from draughts. This he must do, no matter what the weather, always, of course, with proper protection from wind, rain and cold. The infirmary should be provided with such means of egress and covered verandas that bed patients may be taken out into the open air whenever there is not a positive contraindication to such a procedure, the bed being wheeled directly out on the veranda. (Fig. A.)

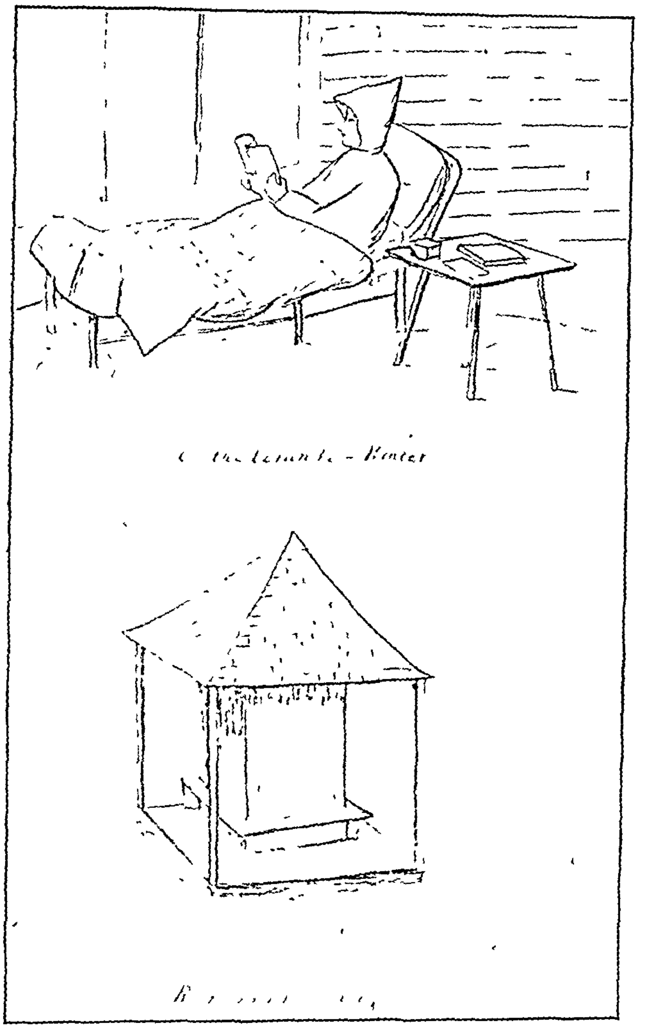

Figure A.

3. *Diet.*—The arrangement of the dietary and the preparation of the food should receive the careful personal attention of the physician. This is a matter of vital importance to the successful management of the tubercular patient. A person thoroughly trained in dietetics should be in immediate charge of the food preparation, giving attention not only to the quality of the food and its proper cooking, but also to the details of its service at proper temperature, and in a tempting, appetizing manner. As a rule, the appetite is poor without an actual digestive derangement, and the patient must be stimulated to eat by persistent persuasion, attractive service and sometimes catering to his fancy, before resorting to medication.

Fat and fat-forming foods must be administered freely, carbohydrates and proteids being given in due proportion. Milk, cream, butter, eggs and potatoes served in varied and pleasing ways offer the best means of attaining this end. Fresh meats, fish, vegetables, cereals and fruits should be freely supplied. The diet should be mixed and varied from day to day. The following dietary is given by Lucas to indicate the amount of the various forms of food necessary:

Breakfast.—Half a pint of porridge, with two ounces of sugar; two rashers of bacon, and two eggs (or chop, steak or fish), bread, four ounces; butter, two ounces; half pint of tea or coffee; milk, one pint.

Mid-day Meal.—Soup; fish, three ounces (or poultry), with butter, two ounces; two or three slices of meat, four ounces; potatoes, four ounces; cabbage and other vegetables, four ounces; pudding, six ounces; cheese, two ounces; bread, four ounces; butter, two ounces; milk, one pint.

Evening Meal.—Two eggs (or cold meat or fish), bread, six ounces; butter, two ounces; jam; half a pint of tea; milk, one pint.

The diet must be largely modified, according to individual needs. During febrile attacks a liquid diet must be prescribed and should consist of milk, raw eggs, meat broths, cocoa, meat juice and other concentrated liquid foods. At times the predigestion of food will be called for and sometimes lavage. Patients much reduced in flesh should be given milk with eggs between meals, and the feeding should be forced until the normal weight is gained. This being attained the diet should be but little in excess of the ordinary, as too much stuffing is liable to lead to digestive disturbance, with consequent loss of weight and a temporary relapse.

4. *Exercise.*—From the beginning of the treatment routine, systematic exercise should be practiced in order to increase the lung expansion and the volume of air habitually respired. A patient in bed may be taught to take eight or ten slow, deep inspirations, hold the breath a moment and then forcibly expire. He should breathe through his nose and take the exercise several times a day at stated intervals. The following respiratory exercise, given by Knopf,* is excellent for increasing the chest expansion, and can be practiced by nearly all class of patients.

Stand straight, with heels together, chest out and head erect.

1. Take a deep, slow inspiration, beginning with the abdominal muscles, and then expanding the chest to its fullest capacity, at the same time raising the arms from the sides to a horizontal position (Fig. 1). Hold the breath a moment and then lower the arms, at the same time making a somewhat forcible expiration.

2. A similar exercise, except that the upward movement of the arms is continued until the hands meet above the head (Fig. 2.)

3. Stretch the arms out as in swimming, the dorsal surfaces of the hands touching each other. During inspiration move the arms outward until they meet behind the back, bringing them forward again during expiration. (Fig. 3.) T

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*S. A. Knopf: Prophylaxis and Treatment of *Pulmonary Tuberculosis*, P. Blakiston's Sons & Co. 1899.

exercise may be made more effective by the patient rising on his toes during inspiration, and descending during expiration.

4. Place the hands on the hips with the thumbs toward the front. Bend slowly backward as far as possible during inspiration. Hold the breath and remain in this position a few seconds, then rise somewhat rapidly during the expiration. (Fig. 4.)

Follow each respiratory act by a forcible secondary expiratory effort, pressing the thorax with the supinated arms to expel as much as possible of the supplemental air.

Massage and Swedish movements should be considered as forms of exercise and be brought into service during the first part of the treatment.

When the rectal temperature does not go above 100 F. in the afternoon the patient may be allowed limited walking exercise. At first a walk of a few rods may be taken and the rectal temperature determined one-half hour thereafter. If it is not elevated the exercise may be allowed regularly, and gradually increased, but must always be under careful regulation by the physician, and due regard paid to the effect on the temperature and other symptoms. No active muscular exertion must be indulged in until convalescence is established, but limited participation may be allowed in the various forms of less active lawn games, provision for which has been previously mentioned. Exercise may also be obtained by occupation of the patients in light gardening, the care of lawns and flowers, some of the farm work, and also, in the case of women, in the work of the household.

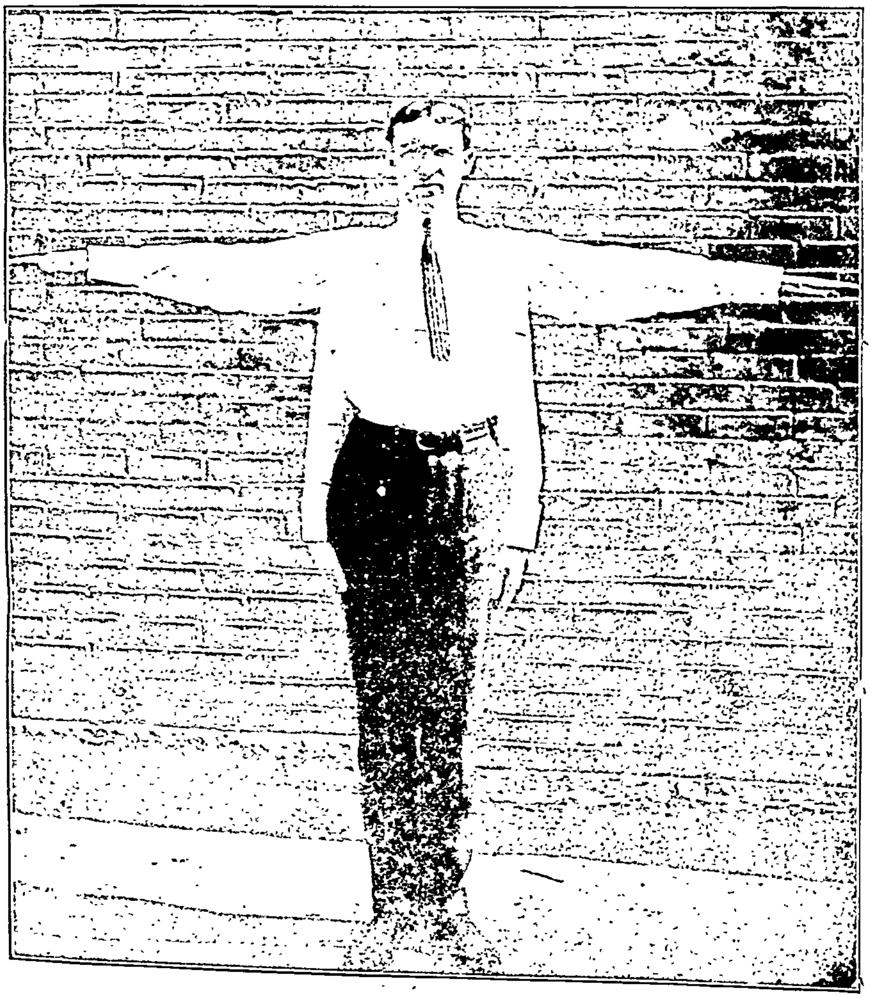


Figure 1.

5. *Bathing.*—On rising in the morning the patient should take a cold sponge bath or at least sponge the body to the waist with cold water. He should then rub himself briskly with a coarse towel until the skin is red and warm. If at first the cold water produces too much shock and there is no proper reaction, the use of a dry rub with a coarse towel should be substituted for the cold sponging. After a few days the dry rub should be preceded by sponging with lukewarm water, a few days later by alcohol and water, and then by water the temperature of which is reduced about 5 degrees each day until cold water at a temperature of 45 to 50 is used, or as it comes from the tap. The same method of bathing should be used for infirmary patients; the water and the friction being applied by the nurse. For cleansing purposes a moderately warm bath should be used twice a week and this should be followed by a cold affusion and friction of the skin of the whole body. Shower, spray and needle baths are excellent for stimulating nutrition and hardening the tissues or increasing the resistance to cold. The sanatorium should be equipped with hydrotherapeutic appliances for the administration of various forms of baths and douches in selected cases.

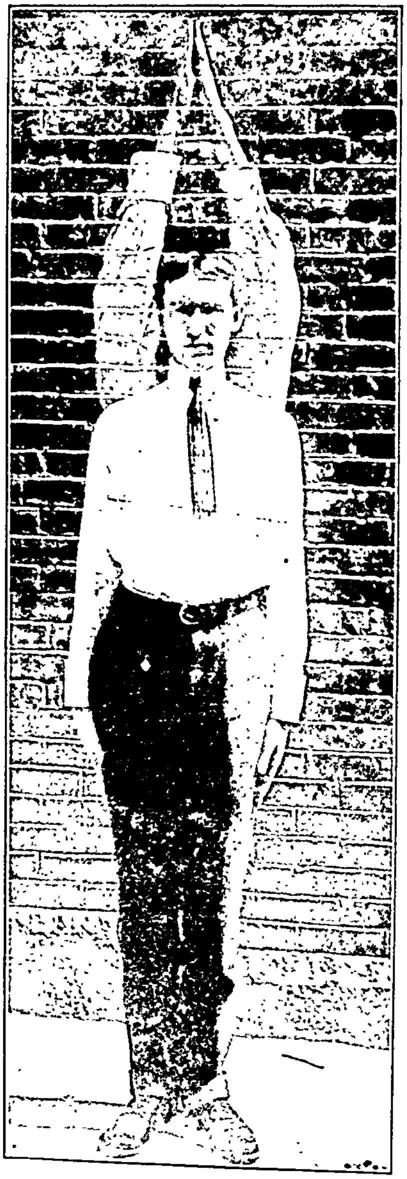


Figure 2.

6. *Sleep.*—The patient should retire at 9 o'clock and remain in bed until 6:30 a. m., between which hours absolute quiet should prevail in the sleeping quarter, thus allowing nine and one-half hours for sleep. Those who have suffered from insomnia generally rest well when taking the open-air treatment, particularly when sleeping out of doors. Being constantly in the open air during the day is conducive to sleep, and hypnotics will seldom be required. Gentle, cool sponging of the head and shoulders, or of the entire body, or cold compresses applied to the abdomen or extremities and covered with a flannel bandage are often efficient in inducing sleep. In more obstinate cases, wet packs, or massage, local or general, should be tried before resorting to hypnotic remedies.

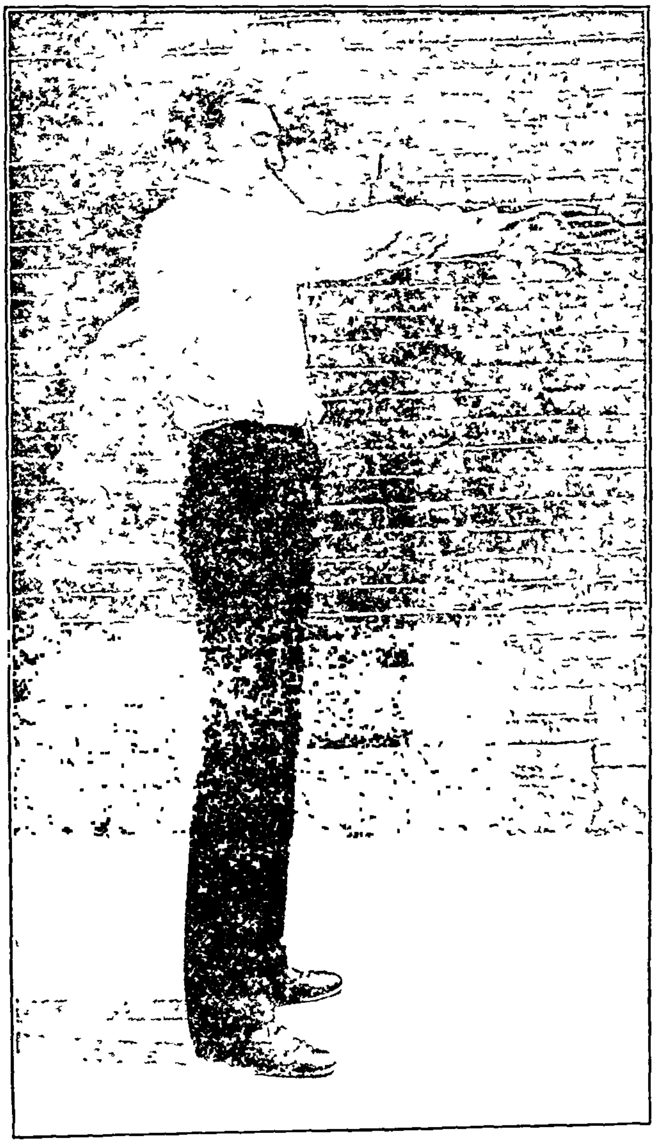


Figure 3.

7. *Symptomatic Treatment.*—In every case there is present, or constantly arising, some condition, anemia, malnutrition, digestive disorder, cough, hemorrhage, pleurisy, or other symptoms which require careful remedial treatment, but the discussion of which does not come within the scope of this paper. I would call attention, however, to the importance of maintaining the entire digestive tract in a healthy condition for the proper digestion of the increased amount of food taken and the thorough removal of waste. Constipation and consequent autointoxication must be guarded against. The teeth should be put and kept in good repair, and systematic attention given to the hygiene of the mouth.

DISPOSAL OF SPUTUM.

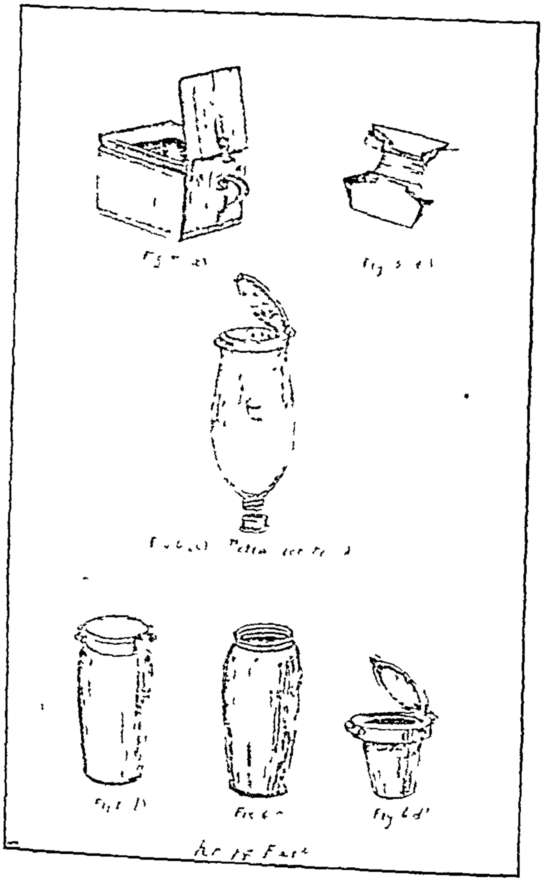
The thing of greatest importance in the sanitation of tuberculosis is the systematic and complete destruction of the tubercle bacilli. Since the bacilli are confined to the sputum in cases of incipient pulmonary tuberculosis, the thorough destruction of this excretion will effectually prevent the spread of the infection. Not only must great care be exercised in the collection of the sputum, but also the utmost cleanliness must be observed in the care of the utensils used and the cleansing of the hands, person and clothing, both of patients and nurses.

Every patient must be provided with a small sputum cup or flask, made of such material that it can be economically destroyed or thoroughly cleansed by antiseptics or by boiling. A useful form of cup is one ma of manila paper, which is supported in a metal fram with handle and cover. (Fig. 5). This cup is inexpensive and can be burned after use, and the frame well disinfected. When the patient is taking exercise and off on a walk a more convenient receptacle is a pocket flask like the Detweiler or the Knopf flask. (Fig. 6) These may be made of glass, but preferably of metal (aluminum) as the glass flasks are liable to be brok in the pocket, by dropping or otherwise, and are therefore less sanitary. A metal flask with tight joints and a properly fitting cover can be carried in the pocket, light, inconspicuous, cleanly and can be sterilized by boiling.

Figure 4.

The patient must be taught to always use his cup or flask for expectoration wherever he may be, and whether for the reception of sputum from the lungs or saliva from the mouth. He must never be without it. It must be at his bedside at night ready for immediate use; always by him during the day, at rest in his room, among his fellows on the veranda and in his pocket on his daily walks. The flask should be used only when away from the building, the cup at all other times.

Twice a day the paper cups should be emptied, their contents mixed with sawdust and burned in a furnace or sputum crematory. The paper cup should also be burned. The metal frames should be washed in a 10 per cent. solution of carbolic acid and refilled with fresh paper cups. The contents of the pocket flasks should be mixed likewise with sawdust and cremated, the flask being washed in a 10 per cent. carbolic acid solution, and boiled for one-half hour in a 1 per cent. solution of carbonate of soda. The nurse who has charge of this operation—and it should always be done by a completely trained person—must wear rubber gloves and a washable sleeved apron during the procedures.



Figures 5 and 6

The use of stationary cuspidors about the buildings and grounds is not to be commended. Although many individuals pride themselves on their ability always to expectorate in the cuspidor, many are they who fall wide of the mark and even miss the target altogether. In respect to the memory of these delinquents it is well to insist on the individual use of sputum cups on all occasions. An exception might be made on the use of a cuspidor in the toilet rooms. Here is a strong temptation, which is seldom resisted, to use the hopper for expectoration. This must be forbidden, and that the restriction may be well obeyed, it is well to have a cuspidor in a convenient location raised two and one-half or three feet from the floor. Cuspidors, if used at all, should be of iron, which can be sterilized by heat; should always contain a quantity of an antiseptic solution and should have well-fitted covers to prevent evaporation or the access of flies and other insects to the contents.

If the sputum cup is spilled or sputum is deposited in any way on the furniture, floor or about the grounds or on the clothing of patients, the nurse, being notified at once, should immediately remove the infectious material and properly disinfect the place before the sputum has time to dry.

If a patient is suffering from intestinal or bladder tuberculosis, or if there are any infectious discharges whatever, these should receive the same thorough antiseptic treatment as in a case of typhoid fever.

KITCHEN AND LAUNDRY STERILIZATION.

All knives, forks, spoons and dishes on which the patients are served must be disinfected after every meal. This can be accomplished by means of a sterilizer after the pattern of a dish washing machine, in which the dishes may be immersed, first in a strong, hot caustic lye and then in boiling water, on being removed from which they dry rapidly by evaporation.

At the table each patient should have his own napkin and rings or other device should be used so that these do not become mixed. The table linen and all bed and body linen should be sterilized by steam before going through the usual laundry operations. Clothing soiled with tubercular sputum, vomitus, etc., should be soaked in 10 per cent. solution of carbolic acid for an hour before being sent to the laundry. The patient's outer garments should be subjected to sterilization by formaldehyd gas at stated intervals, and on discharge from the sanatorium all his belongings and his wearing apparel should be similarly treated.

HOUSE DISINFECTION.

Experiment and careful observation have demonstrated that the wall and floors of properly conducted sanatoria are comparatively free from tubercle bacilli. Also that the walls seldom become infected above a distance of three feet from the floor. The floor should be gone over daily with a mop moistened with a 1 per cent. solution of chlorinated lime and the mop put into boiling water after use. Once a week the furniture and the walls, to a height of three or four feet, should be wiped with cloths moistened with 1 per cent. solution of chlorinated lime, and the cloths burned. The floors and walls to a height of six feet should receive a weekly scrubbing with soap and water. Once a month the rooms should be disinfected with formaldehyd gas. The various articles in the room should be left in place and books should be stood on end and opened so as to separate the leaves freely. Any one seeing a tubercular patient reading and coughing as he reads and noting in this act the spraying of the open page with fine droplets of mucus, will realize the danger which arises from the drying of these droplets containing, as many of them do, the tubercle bacilli. The frequent disinfecting of books used by patients, then, becomes a matter of importance. All rugs, mattresses and pillows should be exposed weekly to the bright sunlight for several hours.

In the construction of the building all corners should be made round for most efficient cleansing.

PERSONAL HYGIENE.

Mention has been made previously of the proper care of the skin and the hygiene of the mo The

1. Absence of symptoms and physical signs of active disease.
2. Absence of tubercle bacilli from the sputum in repeated examinations.
3. Return to normal strength and maintenance of body weight at or above normal.

The length of time necessary for the accomplishment of these results will depend on the progress made by the disease before admission and the zeal which the patient displays in carrying out the prescribed treatment. The more conscientious he is in living up to the spirit and the letter of the régime, the more immediate and certain will be the results. Except in the most incipient cases six months should be put down as the minimum time to be spent in the sanatorium. There are occasional patients whose symptoms become quiescent and who can be discharged after a residence of three months, continuing at home the routine which they have learned. Many cases will show signs of active disease after twelve months' residence. This, as a rule, should be the maximum duration of residence in a public sanatorium where there is constant great pressure for the admission of recent cases. After this length of time any person of ordinary intelligence should be able to carry out in practice at home the principles with which he has become familiar by association and teaching, and the way should be made for the reception of others who may be waiting and losing ground for want of proper guidance.

RESULTS OF SANATORIUM TREATMENT.

Some such classification as the following is usually observed on discharging patients from sanatorium treatment: Apparently cured. Lesion arrested. Improved. Not improved. Those patients are discharged as "arrested" in whom all active symptoms have disappeared, who have no cough, no bacilli, and whose temperature and weight are normal. The patients discharged as cured are those who have passed a considerable interval, usually from six to twelve months, in apparently good health.

The following figures are taken from the Seventh Annual Report of the Massachusetts Sanatorium for the year ending September 30, 1903:

Per cent
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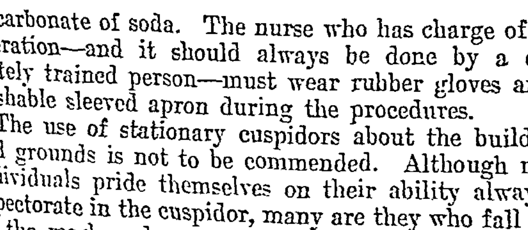
(including all .43.00+
7.90+



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Figures 5 and 6.

of carbonate of soda. The nurse who has charge of this operation—and it should always be done by a completely trained person—must wear rubber gloves and a washable sleeved apron during the procedures.

The use of stationary cuspidors about the buildings and grounds is not to be commended. Although many individuals pride themselves on their ability always to expectorate in the cuspidor, many are they who fall wide of the mark and even miss the target altogether. In respect to the memory of these delinquents it is well to insist on the individual use of sputum cups on all occasions. An exception might be made on the use of a cuspidor in the toilet rooms. Here is a strong temptation, which is seldom resisted, to use the hopper for expectoration. This must be forbidden, and that the restriction may be well obeyed, it is well to have a cuspidor in a convenient location raised two and one-half leads to very favorable results, about 50 per cent. of such cases being very greatly benefited, and some cures resulting even in cases seeming most unpromising. Statistics drawn from resorts receiving all classes of cases, even the most far advanced, show an increase in weight and general health, and decrease in fever, cough and expectoration in 80 per cent. with a return in approximately normal health in over 30 per cent. Thus we see that while the sanatorium treatment is beneficial in all stages of tuberculosis it is the earliest incipient cases which derive the greatest benefit, and are returned with the least delay to their homes and occupation. Thus, the very great importance of an early diagnosis is emphasized, and there is no question but that with earlier recognition of the disease by the use of all diagnostic measures on the slightest suspicion, and the immediate resort to sanatorium treatment a very much larger proportion of cures will be effected, and much time, expense and many valuable lives saved.

FOLLOWING OF PATIENTS AFTER DISCHARGE.

It is important to keep track of patients after their discharge, and to ascertain from time to time their condition and the ultimate result. At intervals of three, six and twelve months after discharge the patient should be required to report to the sanatorium his present condition on a printed form mailed to him for the purpose; or to report in person to the nearest examining physician and a physical examination made, the findings of which should be sent to the sanatorium and put on file with the record of the patient. Thus there would be obtained a record covering a period of two years following his discharge. To supplement this, inquiry should be instituted as to the whereabouts and condition of discharged patients at intervals of two or three years. In this way there would be collected in time valuable statistics as to the ultimate results of sanatorium treatment showing the per cent. of permanent cures, the duration of arrests, the frequency of relapses, the length of life, the causes of death and other facts of importance in the guidance of future therapeutic work.

CONCLUSION.

In conclusion I would call attention to the importance of continuance by the patient of a hygienic life after he leaves the sanatorium. In his home and place of work there must be proper ventilation and cleanliness, the latter term including adequate disinfection. These things are necessary for his own safety, for the protection of his family and his business associates. His food
wall ıst be of the most nourishing, and his whole life well
scrul lered and lived after the manner his institution ex-
room rience has taught him. Not only should he practice
The se things himself, but he should be an apostle of the
and b el of fresh air and sunlight to his fellowmen. And
separa ie accomplishment of all this he should be strenu-
patien aided by the physicians and sanitary officers of
this ac community. "If," says Knopf, "we wage a vigor-
of muc ar on all that is insanitary in our cities, towns and
the dry es; if we endeavor to raise the coming generation
them dc a strong people, able to resist the invasion of the
ing of b enic micro-organism which may escape the watch-
of impor of the sanitarian; if we can, by the creation of
be expos ia for all classes, rich and poor, and by carry-
hours. t the hygienic, dietetic, educational and symp-
In the treatment of all consumptives outside of such
be made ion, cure the curable and make harmless the in-
tuberculous patients, the problem of dealing
Mentior most widely spread of all diseases will have been
of the ski

PULSATING EXOPHTHALMOS; SUCCESSIVE LIGATION OF BOTH COMMON CAROTID ARTERIES; DEATH.*

HOWARD F. HANSELL, M.D.

PHILADELPHIA.

Patient.—S. C., a strong, healthy-looking girl, 22 years of age, applied at the eye dispensary of the Jefferson Medical College Hospital July 30, 1903. She complained of pain in the left eye and left side of the head, and of a constant subjective noise.

History.—On the evening of July 3 she was struck on the inner angle of the right orbit, between the internal canthus and the nasal bone, by the handle of a heavy butcher knife, thrown from a distance of about 15 feet. Both lids of the right eye were bruised and slightly cut, and the nose bled, but other than these insignificant injuries she suffered no immediate ill effects. On the following day she noticed a noise in the head, which she referred more particularly to the *left* side. Two weeks later the left eye became prominent.

Examination.—At the time of the first examination proptosis was marked, pulsation of the eyeball was present, and a bruit was distinctly heard by applying a stethoscope to any part of the head, or over the large vessels on both sides of the neck, and louder over the closed lid of the left eye. It was diminished by pressure on the vessels of the neck. A distinct thrill was communicated to the finger, laid on the termination of the nasal artery on the nasal bone. A superficial vein in the outer half of the left upper lid was greatly dilated and tortuous and the lid was discolored and swollen. The eye was dislocated outward and downward. Movements in all directions were limited, particularly inward and upward, and diplopia was noticed in all parts of the binocular field. The sclera was deeply injected, the media clear, the pupil dilated and slowly reacting and the interior of the eye healthy. Tension normal. The pain in the orbit was constant and severe and increased by the recumbent position. The eyeball could easily be replaced in the orbit, but the exophthalmos returned immediately after the compression was relaxed.

September 3. L., pupil measure, 5 mm.; R., 3 mm. The left reacts sluggishly to light and accommodation, V. = 6/6, with correction of + 3 D. There is no change in the appearance of the fundus; the optic papilla and the retinal and choroidal vessels remain perfectly normal. There was a slight systolic murmur over the apex of the heart.

Course of the Disease.—After observation in the out-patient department for several days, the symptoms increasing in severity, Miss C. was admitted to the hospital. She was put to bed, kept absolutely quiet, and free from all physical exertion, and given large doses of potassium iodid.

During this time Dr. W. W. Keen and Dr. S. S. Cohen confirmed my diagnosis of arteriovenous aneurism in the cavernous sinus. The eye became more prominent and less mobile, the veins of the lid more and more injected, the largest measuring 2-3 mm. in diameter, the noise and pain more unendurable in spite of treatment. Pulsation and bruit could be readily observed at the nasal side of the internal canthus, and with the stethoscope applied to the closed lids, a continuous pulsation with distinct increase in the sound with each contraction of the heart was heard. This bruit could be detected not only over the left eyeball and temple, but on the entire left neck, cheek and over the right eye and cheek, and at a point under the right jaw.

Urine.—Amber, 1,012, neutral, a trace of albumin. No sugar, urea 1.3 per cent., triple and amorphous phosphates, squamous and columnar epithelium, a few leucocytes and erythrocytes. No casts.

After a few days of rest and medical treatment she left the hospital, unimproved. She re-entered Sept. 24, 1903.

SURGICAL REPORT BY DR. KEEN.

I saw her again on September 25. I confirmed the observations made by Dr. Hansell, and agreed with him in the suggestion that the left carotid should be tied. Before this could be done, the exophthalmos had evidently increased and the vein in the upper lid was distinctly more pronounced and more tortuous. The thrill and bruit also were more marked than before.

Operation.—September 30. I ligated the carotid with silk on a level with the cricoid cartilage. I did not see the descendens noni nerve, the jugular vein, nor the pneumogastric nerve. Dr. Hansell examined the eye-ground by the ophthalmoscope as I tied the carotid. The instant that the ligature was tightened all the arteries faded so that they were invisible. Both he and I afterward examined for bruit and thrill and found both gone. At the time of the ligation of the artery also the blood pressure was observed, by the Riva Rocci apparatus. It rose 15 mm. and the rise was maintained after the operation.

Result.—Her temperature never rose above the normal and she made a perfect operative recovery in a few days. (The aneurismal bruit returned, so that it was perceived through the stethoscope as a faint continuous murmur at 4 p. m. on the day after the operation, 25 hours after the operation was concluded. The exophthalmos diminished greatly immediately after the operation, though the eyeball was still somewhat more prominent than the other, so that it was only moderately noticeable. She said she subjectively perceived the sound, but that it was very slight and far less annoying than it had been before the operation. She left the hospital Oct. 10, 1903.

She re-entered the hospital on November 8, on account of the recurrence of all her symptoms, especially the annoyance caused by the bruit. The exophthalmos, also was distinctly greater than when she left the hospital. Dr. Hansell observed for the first time, also, distinct retinal hemorrhages so that she was going from bad to worse, and the integrity of the eye was threatened. This forced us to a second operation immediately, though I had hoped not to tie the other carotid at all, or at least, to defer the ligature for several months, so as to allow of the establishment of the collateral circulation.

Second Operation.—November 11. In view of the retinal hemorrhages, increase of bruit and of the exophthalmos I ligated the right carotid, under local anesthesia, by a solution of adrenalin and eucain. The only time when she had the least pain was when I was separating the sternocleido from the tissues about it by blunt dissection, so as to expose the artery. The solution had not infiltrated so deeply as this. She expressed herself as much better satisfied with this method of anesthesia than with the ether. When I had sutured the wound, I was very much struck with the absolutely blanched appearance of the skin as a result of the adrenalin. It was a dead white over an area which extended above, below, and to a considerable distance both to right and left of the incision. At the moment of tightening the ligature, Dr. Hansell observed the eye ground of the right eye. The moment the ligature was tied, the arteries disappeared as before.

Result.—So far as the wound was concerned, it healed by primary union without any rise of temperature whatsoever. On the second day after the operation she showed a little drowsiness. This deepened and on the third day was very marked. That day, November 14, she had a series of convulsions during the afternoon and evening. On the 15th (the fourth day), she was paralyzed on the left side, and a number of convulsions occurred, becoming finally almost continuous. She died at 10:26 a. m., November 16. Dr. Hansell and I urgently requested a postmortem, and saw the family personally, but they absolutely refused it.

While there may be other causes for pulsating exophthalmos, rupture of the carotid artery in its passage through the cavernous sinus is stated by de Schweinitz to be the pathologic condition in about 60 per cent. of the 200 cases reported up to 1899. In the present ca it is impossible in the absence of a postmortem to be absolutely certain that this was the condition, but it is probable for the following reasons: First, the pulsating exophthalmos; second, the continuous throbbing bruit which was markedly increased during systole and diminished, but did not disappear during diastole of the heart; this would seem to be the most important reason; third, the thrill which accompanies an arteriovenous aneurism; fourth, the passive enlargement of the veins.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

I regretted extremely the necessity of ligating the opposite carotid so early as six weeks after the first ligature, for I greatly feared that the collateral intracranial circulation might not be well established, and that so early a ligation might prove fatal. The increasing retinal hemorrhages which threatened the integrity of the eye, however, compelled us to do the second operation.

Murray[1] reviews the subject of pulsating exophthalmos at some length. Seventy-one per cent. of the 197 cases reported up to 1898 followed traumatism, and 29 per cent. are due to existing chronic endarteritis of the internal carotid artery. In speaking of the therapeutics, he says that of 53 cases treated by digital compression, 15 were cured or improved; by ligature of the common carotid 51 per cent. were cured, 17 per cent. improved, 17 per cent. unimproved, 10 per cent. died. The mortality following the operation is only 10 per cent., while the death rate following the same operations for the cure of other conditions than pulsating exophthalmos is 25 per cent. (Wyeth gives 43 per cent. in 789 cases). He quotes Boden in reference to the frequency and mortality of double operation, who reported in 1899 that there had only been 6 cases of ligature of both common carotids, the interval between the two operations in 4 of the 6 cases being thirty days, fifty-four days, sixty days, thirty-two days. Five of the six patients were cured or improved, and none died.

The most recent compilation of the papers that have been published on the subject is that by Barnard and Rugby.[2] These writers report a case in which a bullet passed through the roof of the mouth to the base of the skull, which was perforated and smashed. The left side of the face was paralyzed and the left pupil was dilated and fixed. The lids were swollen and very prominent, all the external ocular muscles paralyzed, the cornea insensitive and the eye pulsated vigorously. A thrill was felt and a bruit heard over the closed lids. Ligature of the left common carotid artery was performed. The proptosis diminished and the pulsation disappeared for four days, recurred and disappeared again in ten days, but the eye was blind from opacity of the cornea. Two months later the patient complained of headache. The bullet, which was located by the x-rays above the petrous bone in the temperosphenoidal lobe, was probably surrounded by purulent degeneration of the cerebral matter. The postmortem showed the presence of a double sacculated aneurismal dilatation in the intracranial course of the internal carotid artery. There was no arteriovenous communication in the cavernous sinus. The interest in this case lies in the presence of all the typical signs of traumatic pulsating exophthalmos due to the unusual lesion of a sacculated aneurism of the carotid artery. The authors collate statistics both in favor of and against ligation of the common carotid. Rivington[3] in 44 cases, both idiopathic and traumatic claimed about 50 per cent. of cures. LeFort[4] claimed 61 per cent. successful, of which 54 per cent. were cured. The results of compression are much less favorable, according to LeFort, who gives 86 per cent. of failures.

This author says: "If the exophthalmos is double and ligation on one side has failed, and if pressure on the other side checks pulsation and bruit, one should not hesitate to tie the other carotid." C. S. Bull[5] says: "Ligation of the carotid is the oldest operation for the relief of pulsating exophthalmos, and has given the most satisfactory results. As a rule, the pulsation and bruit disappear immediately, any existing tumor collapses, the eye often sinks back into the orbit, and the tension and distension of the veins in the orbit diminish. Faint subjective sounds may return after a few hours, but the other symptoms soon entirely disappear. The swelling of the lids and the chemosis vanish, the exophthalmos lessens, the motility of the eyeball returns, and the vision is gradually restored. The swelling and cloudiness of the optic disc subside, the retinal veins become less engorged and tortuous and the hemorrhages are absorbed. Paresis of one or more of the ocular muscles sometimes remains for a long period unchanged. In most of the cases, the cure is complete in six weeks."

REMARKS.

The return of the affection after ligation may be due to deficient coagulation of blood, or the veins may close on the same side, but the blood finds its way to the other side through the circular sinus, or there may be a fresh aneurism, or the superior ophthalmic vein of the side first affected has been obliterated at its opening into the cavernous sinus by the thrombosis of the sinus produced by the ligation of the carotid. The cavernous sinus subsequently regains its permeability, and the still yielding cicatrix in the arterial wall yields and opens again. The arterial blood again enters the sinus, passes through the circular sinus into the cavernous sinus of the opposite side, and produces here the symptoms of pulsating exophthalmos.

As against ligation, it is urged that there are records of several cases in which the physical signs and symptoms had existed a long period with little marked effect on the well-being of the patient or little danger of death. Among them is a traumatic case by Williamson[6] that had persisted twenty-three years; one by Frost,[7] twenty-one years; one by Brown,[8] sixty-five years.

As a second argument is the recurrence of the signs and symptoms after ligation, and as a third is the possibility of a spontaneous cure.[9] Rivington's statements of postmortem findings in 12 cases are interesting. In no case was there simple traumatic aneurism; in 3 direct communication between the artery and vein in the cavernous sinus; in 1, aneurism of each ophthalmic artery; in 1 simple dilatation of the carotid artery; in 8, the ophthalmic veins enlarged and varicose. Up to 1898, 197 cases were published without settling the question of cause, course or treatment.

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[1] Annals of Surgery, March, 1904.
[2] Ibid., May, 1904.
[3] Medico-Chirurgical Trans., 1875.
[4] Rev. de Chirurgie, 1890.
[5] Norris and Oliver's System.
[6] British Med. Jour., 1894.
[7] Ophthal. Soc. Great Britain.
[8] Ophthal. Trans., vol. ix.
[9] C. A. Silver: New York Med. Jour., April 9, 1904.

INTERMITTENT EXOPHTHALMUS, WITH REPORT OF A CASE.*

WM. CAMPBELL POSEY, M.D.,

PHILADELPHIA.

Patient.—C. McL., a drug clerk, 21 years of age, consulted me eighteen months ago at the Wills Eye Hospital, on account of a feeling of "looseness" in the left eye, and for the correction of a tendency which the eye had to drop forward when he inclined his head forward or made slight muscular exertion.

History.—The patient said that his mother had noticed when he was but 4 years old that when he stooped to tie his shoe laces the left eye became swollen, but recovered its natural appearance as soon as he regained the upright posture. This tendency to protrusion of the eyeball persisted until he was 12 years of age, when he had a severe fall, striking his head, after which it was thought that the eye fell forward oftener and to a greater degree than before the accident. Of late years he had remarked that the eye could be made to protrude by simply holding his breath. There had been no pain nor inflammatory symptoms in either eye at any time and vision was unaffected except for a slight blurring in the left eye at the time of the protrusion. It was elicited that the patient had had diphtheria when he was 3 years of age, but it could not be ascertained whether the peculiar behavior of his left eye antedated this affection or not. Other than this attack of diphtheria, his health had been good. His family history was also good and there was no record of an ocular affection similar to his own in any of his relatives or ancestors.

Examination.—With the patient sitting quietly in a chair (Fig. 1), with his muscles relaxed, both eyes presented a normal appearance, save for a slight dilatation of the palpebral fissure of the left eye; the moment, however, that the head was bowed forward, or the breath held for a time, or pressure made on the jugular vein, the left eye began slowly to protrude from the orbit, being driven straightforward in the axis of the orbit. As the globe was proptosed, the upper lid drooped slightly, covering about 2 mm. of the upper portion of the cornea, while the lower lid fell away from the globe, showing about 6 mm. of clear sclera. If the muscular strain was continued the proptosis became even more marked, the lids becoming blue and swollen, the inferior tarso-orbital sulcus bulged out and was obliterated, and the superficial veins about the orbit became much distended (Fig. 2). Finally, the degree of the exophthalmus became so marked that there appeared danger of the globe becoming dislocated in front of the lids. The moment the strain was removed, however, the eye sank rapidly back into its place and in a few moments had resumed its natural position in the orbit.

The position of the right eye was unaffected throughout. No bruit could be felt or heard over the left eye at the time of the proptosis, and it was noted that even light pressure on the globe was followed by a remarkably easy recedure of the globe, the eye seeming to drop back further into the orbit than is the case under normal conditions. In the quiescent state the excursions of both eyes were normal, the pupils were of slightly different size, that of the right eye being 2½ mm., that of the left 3 mm.; both reacted normally to light and convergent stimuli. The ophthalmoscope revealed slight hypermetropia in both eyes and normal and similar fundi with nothing unusual in the course or distribution of the retinal vessels. At the time of the proptosis, however, it was noted that the vessels in the left eye became rounder and fuller and more cordlike, this being particularly true of the veins. The vision in each eye equaled 5/5, but at the time of the proptosis the vision in the left eye fell to 5/7½. The patient was sent to the Polyclinic Hospital for further study, and, at my request, an examination was made of the general condition by Dr. Riesman, and of the throat and nose by Dr. Freeman. Dr. Riesman's report is as follows:

"The patient is somewhat undersized and of spare build. The forehead is low; there are dark rings under the eyes; the tongue is clean and moist. The neck is large and broad, especially at the level of the thyroid cartilage, becoming narrower above. In the quiescent state, this enlargement of the neck appears to be principally due to a bulging of the sternocleidomastoid muscles in their middle third. The thyroid is palpable but not enlarged. The chest is well formed; there is a delicate fringe of distended capillaries across its lower portion, in the hypochondriac region.

"The heart boundaries are: On the right, a little to the left of the right sternal border; above, the top of the fourth rib; on the left, a line one inch within the nipple-line; below, the fifth interspace. The apex-beat is indistinctly palpable in the fifth interspace, an inch and a half within the nipple-line. Auscultation shows slight accentuation of the second aortic sound. The pulse is 92, and distinctly dicrotic. The radial artery is a little thickened.

"The liver dullness extends from the fifth interspace in the right mammary line to the costal margin. The spleen is not enlarged.

"When the patient is asked to proptose the eye, he takes a deep inspiration and holds his breath. For a short time no movement is observed in the eye; then it is forced forward, the patient's face becoming, at the same time, red and congested. The pulse slows down during the bulging, and is eventually arrested. At that time the heart sounds can not be heard; on auscultation nothing is detected except a continuous, faint hum, produced by the chest muscles, which are in a state of high tension. The cardiac arrest lasts about fifteen seconds. Rather suddenly, the heart sounds again become audible, but they are feeble and show a marked increase in rate (144). The sounds gradually become stronger and slower, until they fall to the normal number. During the proptosis, the neck becomes greatly enlarged, and the patient looks as though he had a huge goiter of the lateral thyroid lobes. The neck measurements are as follows:

	During rest. cm.	During proptosis cm.
At the top	36	37
At the middle	36	38
At the base	38	30.5

"*During the respiratory arrest, the lung expands in all directions and the percussion note becomes more tympanitic. The boundary of the lung descends posteriorly* about 2 cm.; *anteriorly, in the right nipple-line, 3.5 cm.,* so that the upper border of the liver dullness is at the seventh rib. The heart dullness becomes diminished, the left border being 1 cm. within the line previously given. During the asphyxia *there is also a marked distension of the veins* on the backs of the hands, with increase in congestion. These veins are however, even during rest, abnormally conspicuous."

The examination of the throat and nose by Dr. Freeman was reported as follows:

"The neck is very large at the base, so that a fifteen-inch neck band is tight. Above the collar, the neck appears normal; it is even quite small. The neck band raises decidedly with each pulsation of the heart and there is considerable throbbing of the blood vessels of the neck, chiefly marked on the left side. Pressure on the jugular near the larynx causes the left eye to protrude. The eyes are rather sunken, especially the left. The left fossa is rather obstructed by full turbinals, and the mucous membrane on that side is abnormally hyperemic. This is most unusual, as active congestion of the superficial blood vessels is seldom seen limited to one side. The mouth, throat and rhinopharynx are practically normal. The transillumination test shows both antra perfectly clear and a faint glow is seen through the pupils. When, however, the effort is made to protrude the eyeball, as by pressure on the neck, or holding the breath, the light entirely disappears from the upper part of the face, this being more slowly *apparent on* the right side. The condition whether of a *varicose* nature or not, seems to affect both bits and the upper part of the nose, though it is much more pronounced in the left eye. I believe the enlarged condition of his neck exerts a marked influence on the return circulation from the head, bringing the veins directly under his muscular control."

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The case which has just been described is an instance of that rare condition known as intermittent exophthalmus, the chief characteristic of which is an abnormal mobility of the eye in an antero-posterior direction, in consequence of changing volume in the contents of certain of the orbital veins. The name *"Exophthalmus a volonté"* has also been given to the condition, as subjects of this affection are able to change the position of the globe at will. Others designate it as "alternating enophthalmus and exophthalmus," as descriptive of the condition which exists in some cases. Of these three names, the one chosen as the title of this paper is to be preferred, for voluntary exophthalmus is a misnomer in those cases where the globe proptoses involuntarily, while the title can not be applied to all cases, since enophthalmus is not always found.

That the affection is a rare one is attested by the fact that I was able to collect but 39 other cases in all ophthalmic literature. It is probable, however, by reason of the greater number of cases reported in recent years, that the disease is not so rare after all, and that the infrequency with which one encounters reports of cases of intermittent exophthalmus in the literature is attributable to ignorance of its peculiar characteristics and to its being classed among the ordinary angioma of the orbit. Popular text-books in the English language make no mention of it, indeed, a rather careful search through German and French textbooks as well discovered references to the affection in but two of these. All the monographs have been written by German or French observers. Although cases which were undoubtedly instances of intermittent exophthalmus had appeared in the literature much earlier, Dupont was the first to give a satisfactory description of the affection, in a monograph which appeared in 1865. This author referred to four cases which had already appeared in the literature, and gave a full description of the symptomatology, course, diagnosis and etiology of the affection. The next article of importance was that of Sattlers[1] in 1880, and a year later Yvest[2] referred to the four cases already reported by Dupont[3] and added three others. In 1893, Sergent[4] collected most of the cases which had been already reported, wrote of their symptomatology in a comprehensive manner, and divided the cases into three groups. The next contribution of importance was in 1894, and appeared in Panas'[5] text-book. A year later, 1895, Van Duyse[6] reported a case and dwelt at length on the symptomatology of the affection. In the same year, April, 1895, Becker[7] published the most complete article which had appeared up to that time, citing nineteen cases from the literature, and reported two additional cases of his own. Two years later, 1897, Vossius gave another masterful exposition, but, being ignorant of Becker's article, repeated much of the contents of that author's paper. Vossius rejected the earlier cases referred to by Dupont and Sattler and included by Becker in his list, either on the ground of insufficient data or as manifestly of a different nature from typical cases of intermittent exophthalmus. In 1898 Scheffels[8] reported another case and rearranged the cases into groups differing somewhat from the previous authors.

In addition to these more or less elaborate monographs, reports of individual cases have appeared from time to time, without particular comment by their authors on the pathogenesis or symptomatology of the affection. But two cases, in addition to the one which I report, have been described by American authors, one by R. Sattler[9] and one by Grüning,[10] and only three by Englishmen, i. e., Collins,[11] Lang[12] and Bickerton, the remaining thirty-five having been seen in Europe.

The last article on the subject was by Hitschmann,[13] in July, 1900, and in conjunction with one by the same author which appeared six months earlier, is the most exhaustive treatise on intermittent exophthalmus which has yet appeared.

SYMPTOMOLOGY.

As already noted in the case which has been reported by me, and which may be regarded as a typical instance of intermittent exophthalmus, the characteristic symptoms of this affection consist in a more or less rapid, steadily forward movement of one eye when the body assumes a position which places the head in a dependent position, or when the flow of blood from the head to the trunk is impeded to any extent, either by voluntary act of the subject, as holding of the breath, or by pressure on the jugulars, coughing, sneezing, binding the neck with tight collars, etc.

The proptosis is either directly forwards or the globe may deviate to some extent from the anteroposterior axis of the orbit. The exophthalmus attains its maximum as a rule in about five seconds, and the eyeball rapidly recedes as soon as the conditions favoring it have been removed. Actual measurements show that the globe is driven forwards from 10 to 15 mm.; in one case the degree of the proptosis was so great that the globe was actually dislocated in front of the lids (Lacompte).[14] As in the case I reported, ptosis may appear when the exophthalmus is beginning to be marked, and may attain a degree sufficient to cover the upper part of the cornea.

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[1] Sattler, H.: Pulsierender Exophthalmus, Gräfe-Saemisch Handbuch der Augenheilkunde, vol. vi, p. 879 (Varikose Venengeschwülste in der Orbita.)

[2] Yvert: Des tumeurs de l'orbite en communication directe avec la circulation intracranielle. *Recueil d'Ophthal.*, 1881, pp. 193; ref., Michell's Jahresbericht, 1881, p. 453.

[3] Dupont: Des tumeurs de l'orbite formées par du sang en communication avec la circulation veineuse intracranienne, Thèse de Paris, 1865.

[4] Sergent, E.: De l'exophthalmus intermittent ou *exophthalmie* a volonté, Gazette des Hôpitaux, 1893, No. 60.

[5] Panas: Traité des maladies des yeux, vol. ii, p. 401.

[6] Van Duyse, Daniel, et Bribosia, Edmond: Enophthalmos avec exophthalmie intermittente à volonté. Arch. d'Ophthal. V. Panas, etc., vol. xv, pp. 159-170, 1895.

[7] Becker, H.: Ein Beitrag zur Kenntnis der Schleimcysten und Gefässgeschwülste der Orbita, Arch f. Ophth., vol. xli, No. 1, p. 119

[8] Scheffels, O.: Ueber intermittierenden Exoph. und Enoph., Deutsche med. Wochen., 1898, No. 22, p. 347.

[9] Sauter, R.: A Case of One-sided Transitory Exophthalmus with Undisturbed Function and Muscular Movements of the Eye and the Co-existence of Enophthalmus or Recession of the Globe. Amer. Jour. of Med. Sciences, vol. lxxxix, 1885, p. 486.

[10] Grüning: Exophthalmus dexter bei vorwärts-bewegung des Körpers, Arch. f. Augen- und Ohrenheilkunde, V. Knapps-Moos, vol. iii, p. 168.

[11] Collins, H. Treacher: A Case of Enophthalmus Becoming Exophthalmus on Stooping, Trans. Ophth. Soc., vol. xv, 1895; ref., Revue Générale, 1896, p. 379.

[12] Lang and Thompson: Proptosis *Occurring* on Stooping or Compressing the Jugular Vein, Oph. Soc. of the United Kingdom, 1897; Ophthal. Review, 1897, p. 161.

[13] Hitschmann, R.: 1. Demonstration Eines Falles von Exophthalmus intermittens und Ausgebreiteten Phlebektasien in Bereiche der Venae Jugulare, K. K. *Gesellschaft* der Aerzte in Wien., Sitzung vom 12 Jan., 1900; Wien. klin. Wochen., 1900, No. 3, u. Ophth. Klin., 1900, No. 5; 2 Centralbl. f. d. Grenzgebiete *der* Medizin und Chirurg., vol. iii, No. 13.

[14] Lacompte: Exophthal. a volonté. La Belgique Méd., 1897, 28 Oktober; Revue Générale d'Ophth., 1898, No. 2; Nagel's Jahresberichte, 1897.

As was well shown in the case which has just been described, even when the exophthalmus had attained its greatest degree, there was little or no alteration visible either in the exterior or in the interior of the eyeball itself; the lids, however, became distended and a bluish tinge was imparted to them and to the skin surrounding the orbit. If there are any varicosities of the veins of the skin and conjunctiva, they become filled at the same time with the proptosis of the globe. Sometimes a venous tumor can be seen and felt, either behind or alongside of the globe; in most of the cases, however, no such tumor can be demonstrated. Bruit and pulsation over the eye are absent. The proptosis is usually unaccompanied by pain and in many cases the subjects themselves are unaware of the protrusion of the eye until their attention has been called to the fact by another. Usually, however, there is an unpleasant sensation of pressure and fullness in the orbit when the head is bowed forward, as though the eye were starting out of its socket. In some of the cases, especially those in which the exophthalmus is of extreme degree or persists unusually long, there is quite severe pain and tenderness in the orbital region, which may be accompanied by vertigo.

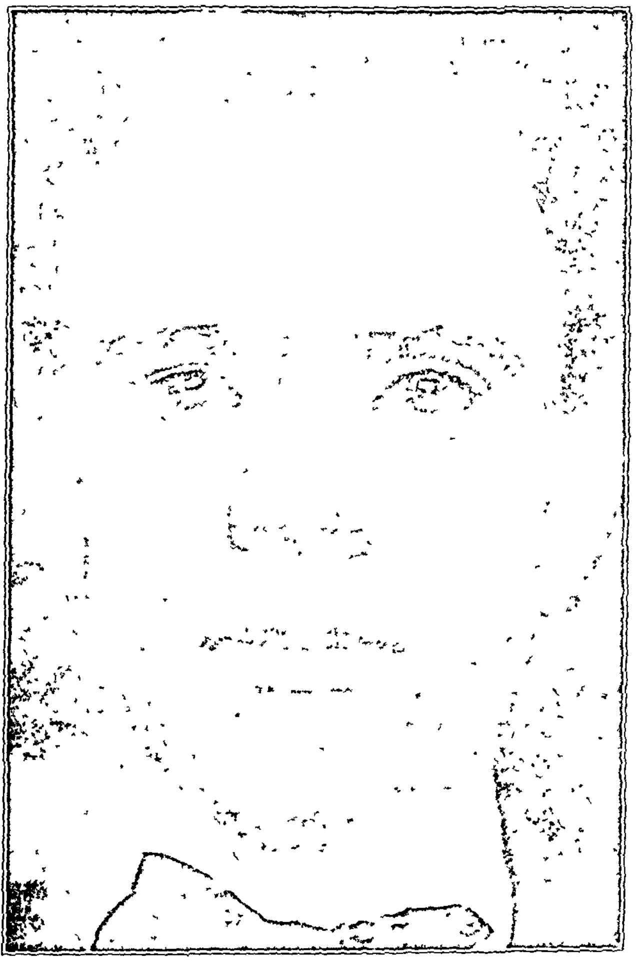

Figure 1.

When the head is held in the upright position and the conditions which favor exophthalmus are absent, the eye presents either a normal appearance or one of slight enophthalmus, so that it resembles an artificial eye. In some cases there is slight proptosis and the tarso-orbital fold is deeper. The size of the pupil is usually unaltered, though in several of the cases it was noted as being dilated and in others contracted. Vision may not be affected, even at the height of the exophthalmus; generally, however, it is lowered when the proptosis is extreme, but becomes normal with the return of the eyeball to its normal position in the orbit. In a few cases vision may be much affected permanently, or even absolutely lost; in all such there are complications of various kinds, such as retinal hemorrhages which occasion disease of the optic nerve. Vision may be disturbed by derangement of the balance of the extraocular muscles, and diplopia has been recorded in several instances.

In many of the cases no change could be noted in the fundus, either during the exophthalmus or in the interim; in others, on the other hand, there was a dilatation and tortuosity of the retinal veins, the retinal vessels became empty and much reduced in size and the head of the nerve veiled, the normal appearance quickly returning to the fundus, however, as soon as the globe regained its normal position. Phlebectasia of the retinal vessels and of the conjunctiva was observed in a case by Hitschmann, and retinal hemorrhages have been noted by several observers. The tension is normal Pressure on the eye, however, causes it to sink back deep into the orbit, and this occurs whether the eye is in its natural state or in that of exophthalmus.

Several cases have been reported where there was pulsation of the eyeball itself, synchronous with the beat of the heart. In other cases retrobulbar hemorrhages came on suddenly with marked constitutional symptoms, such as nausea, vomiting, dizziness, and at times coma. The exophthalmus in these cases was attended by great pain; movements of the globe were restricted; the eyeball did not recede when the patient stood upright, and ecchymosis appeared in the lower lid, after a few days, and the globe went back into its normal position, either with normal or restricted vision Such hemorrhages are ascribed to sudden changes in the circulation in the venous system, and to a certain thinning and weakening of the orbital veins and their branches. Neustätter[15] recorded a case in which the exophthalmus, which had been intermittent, became permanent, due to thrombosis of the dilated orbital veins from typhoid fever.

The exophthalmus is limited to one eye, and in the cases reported in the literature, each eye was affected about an equal number of times.

As already mentioned, at the time of the protrusion of the eyeball, in a number of cases, a tumor appears in the orbit, which attains its maximum size when the proptosis is at its height and disappears with the exophthalmus when the conditions which occasion the protrusion of the eye are removed. This tumor varies in size from a pea to a large bean and may occupy any portion of the orbit.

In addition to this class of cases, there is also another, where a tumor appears in some part of the orbit or lid, under the conditions which favor an intermittent exophthalmus and disappears when these conditions are removed. Some of the authors have grouped all three types of cases, i. e., those with exophthalmus without visible tumor, those with exophthalmus and an associated tumor of the orbit, and finally vascular tumors of the orbit without exophthalmus, under the one heading of intermittent exophthalmus; while others have arranged the cases according to the site of the varicose veins in the orbit.

As the genesis of the three classes of cases is the same, and as the presence or absence of exophthalmus or orbital tumor is accidental in any given case, depending

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15. Neustätter, O.: Disskuss zu Vosius am. 26 [illegible] Zwei seltene Fälle von orbitaler Krankungen. [illegible] Monatsbl. f. Augenheilkunde, vol. xix, p. 72-75.

on the position of the dilated veins in the orbit, it is impossible to disassociate these groups in describing the disease, though for purposes of classification and description it may be well to do so. Scheffel's classification is as follows:

1. Cases in which the varix is posterior to the globe and there is a simple exophthalmus, either directly forward or with slight lateral deviations.
2. Cases in which the varix is more anterior and may become visible and palpable alongside the eyeball, which has also been proptosed.
3. Cases in which the varix is still more anterior, and where no exophthalmus manifests itself, only the varix appearing.

PATHOLOGY.

As no autopsy has been made on a case of intermittent exophthalmus, it is impossible to assert definitely the pathologic lesion which occasions it, but the clinical symptoms are so striking and so manifestly due to a change in the volume of the veins of the orbit that almost all writers on the subject assign this as the cause of the disease. The structure of the superior ophthalmic vein favors the formation of a varix, for it is without valves and contains a great many constrictions in its course and especially where it empties into the cavernous sinus.

In addition to this, there are certain local conditions which favor a stoppage of the circulation of the blood in the orbit; these have been summarized by Sergent[4] as follows:

1. Anomalies in the bony configuration of the orbit (narrowness of the supraorbital fissure at the point of passage of the veins).
2. Anomalies in the muscles, ligaments and fat bolster of the orbit.
3. Anomalies in the resisting power of the vein walls.

Finally, most authors agree with Sattler that there is an individual predisposition to venous dilatation in many of the cases, as is further evidenced by the varicosities which appear on the face and in other parts of the body in many of them. It has been asserted by a number that a dilatation of the veins alone could not explain the conditions, and they believe that there is in addition a relaxation of the fascia, which holds the globe in the anterior position of the orbit. Van Duyse,[6] Bribos and Terson[16] explain the condition as a trophoneurosis of the orbit as a result of an affection of the sympathetic of the head, and Trombetter,[17] who called particular attention to the facial asymmetry, considers the affection as a commencing and a typical form of hemiatrophia facialis progressiva. Vieussen[18] explained his case by a congenital connection between the arachnoid space and Tenon's capsule, through the medium of the supraorbital fissure. While, as has been stated, in the absence of autopsy it is impossible to do more than hypothesize concerning the origin of the affection, from the clinical manifestations it seems proper to assign the varicosities of the orbit as the primary change and regard the absorption of the fat of the orbit and the looseness of the fascia which occasions, as secondary.

ETIOLOGY AND PATHOGENESIS.

Intermittent exophthalmus may be congenital, or it may develop in childhood; in the great majority of cases, however, it manifests itself at an age when violent physical force is expended and an impediment offered to the ready escape of the blood from the head, with consequent dilatation of the orbital veins. It is probably by reason of the greater physical strain to which men are subjected that the condition occurs more frequently among them than among women; thus, of the 40 cases recorded, about 65 per cent. occurred among men. When women are affected, the period of the appearance of the menses seems to have had a causal connection in a number of instances.

It is often possible to elicit the history of a fall or of a blow on the head, and many authors mention such incidents as etiologic factors, though the length of time which elapses in some of them before the exophthalmus appeared would render such a connection doubtful.

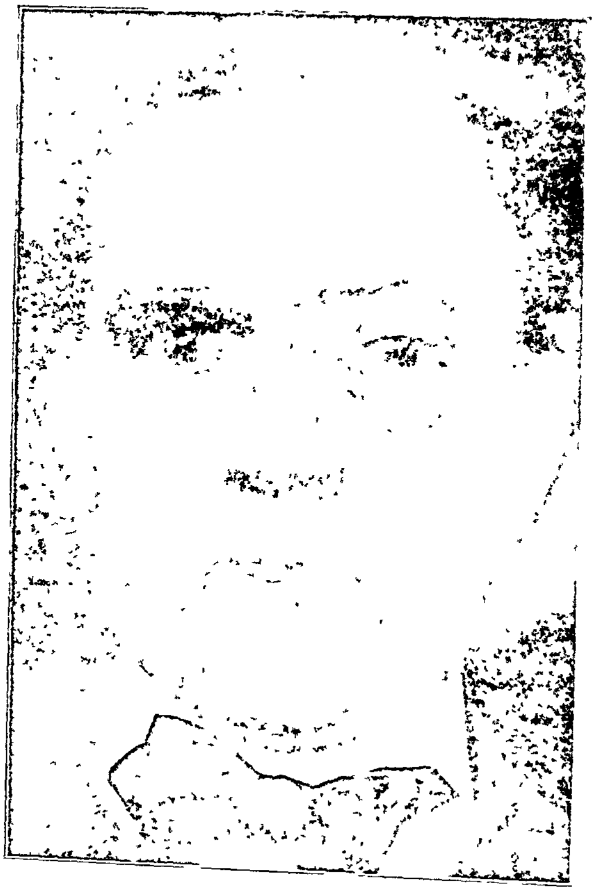

Figure 2.

DIAGNOSIS.

The diagnosis is not difficult, there being no other affection where the exophthalmus appears and disappears so rapidly and under such conditions. Thus intermittent exophthalmus can readily be differentiated from true cavernous tumors of the orbit by the exophthalmus in the latter class of cases persisting when the head is in an upright position, by the occurrence of angiomatous tumors elsewhere in the orbit, by the presence of pulsations and of bruit, and by the slow appearance of the exophthalmus.

The diagnosis, however, from retrobulbar cavernous angioma is not always so readily made, and a number of cases in the literature which have been described as cases of intermittent exophthalmus really belong to this group. Although the exophthalmus may in certain cases of intermittent exophthalmus become permanent (Grüning,[10] Dolgenkow,[19] Van Duyse[6] and Moyart,[20] Hitschmann[13] and Ostrowitski[21]), this is the rule in cavernous tumors; pulsation and bruit are also usually present. Finally, while compression of the jugular in cavernous tumors exerts some influence on the degree of the exophthalmus, it is but slight in comparison with that which follows interference with its circulation in the class of cases under discussion. Intermittent exophthalmus may be differentiated from hemorrhages of the orbit by the history, by the discoloration of the globe and lids, and by the rapid disappearance of the exophthalmus; from emphysema of the orbit after fracture, by crepitation and the relatively rapid healing; from exophthalmic goiter by the other cardinal symptoms of that disease, and by the permanent character of the exophthalmus.

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[16] Terson, A.: Maladies des Yeux, Tome V des Traité de Chirurg. clin. et opérat. dirgé par Messrs. le Deuter et Delbet.

[17] Trombetta, E.: Stato enoftalmico associato ad esoftalmo intermittente, Giornale d. R. Accad. med. di Torino, 1897, vol. xv, p. 537.

[18] Vieussen: Communication entre le carté arachnoidienne et la capsule de Tenon. Recueil d'Ophthalmol., 1878, p. 314; ref. in Hirschberg's Centralbl. f. Augenheilkunde, 1878, p. 512, und in Nagel's Jahresbericht, 1879, p. 437.

PROGNOSIS.

The prognosis may be stated in general terms to be good, for though the tendency to protrusion of the eyeball may grow more and more marked with advancing years, as the result of a greater dilation of the veins and an increased laxity of the fascia, vision, as a rule. remains unimpaired, no inflammatory symptoms set in and the fellow eye is never affected. As monocular blindness may result from hemorrhage into the orbit or from pressure of the varicosities on the optic nerve, or from hemorrhage into the retina itself, the prognosis, however, should not be too favorable and the possibility of such serious complications should always be borne in mind.

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The patient should avoid the conditions which cause the eye to proptose and all severe muscular strain should be prohibited; rest in the recumbent or sitting posture should be enjoined, and a bandage should be applied over the affected eye for several hours daily. Though Nélaton obtained a cure by injecting a few drops of the perchlorid of iron into the veins. this procedure can hardly be advised, on account of the danger to provoking thrombosis of the cavernous sinus. The radical healing by extirpation of the mass of veins, as proposed by Chelius, is not without danger, and electropuncture should be first essayed.

In cases uncomplicated by orbital hemorrhage or by visual disturbance, non-operative interference, in our present state of ignorance regarding the pathology of the affection, should be advised, but in cases where hemorrhage has occurred and where the loss of vision is threatened in the affected eye, then. perhaps. Hitschmann's counsel of laying bare and resecting the affected veins should be followed. Krönlein's operation being resorted to if necessary.

A LIST OF ALL TRUE CASES OF INTERMITTENT EXOPHTHALMUS IN THE LITERATURE.

All the authors of whom mention was made in the earlier part of this paper referred to the cases in the literature, and compiled lists of all cases which had appeared up to the time of the publication of their articles, but owing to some difficulty in classification or to a failure to consult the entire literature of this comparatively unknown form of disease, none of the lists is complete. In his final paper Hitschmann gives the most complete list of all. and very properly does not include the cases of varicose veins of the lids or conjunctiva which appear without exophthalmus on stooping, etc., which have been included by Becker[7] and Vossius in their lists. Of the cases cited by him, however, two should be excluded, namely, that of Axenfeld[22] and that of Vossius; that of the former, as it had already been reported by O. Meyers,[23] and that of the latter, as it, too, had already been described. Five additional cases should be added, namely, those reported by Bickerton, Leitner, Lesshoft, Mackenzie, P. Smith, as they are all true instances of intermittent exophthalmus. With these corrections, the list would comprise 39 cases in all, and with the addition of the one I record, 40. After a careful study of all the cases in the literature, I believe the following is a complete list of those who have reported cases of exophthalmus:

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2. Bickerton.
3. *Böhm.*[24]
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5. DeVincentiis.[25]
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11. *Hitschmann.*[13]
12. Lacompte.[14]
13. Lang.[12]
14. Leitner.
15. Lesshaft.[29]
16. Magnus.[30]
17. L. Mayer.[31]
18. Mackenzie.
19. O. Meyer.[23]
20. Mulder.
21. Neustatter.[15]
22. Ostrowitski.[2]
23. Panas.[5]
24. Posey.
25. Radzwitzky.[32]
26. P. V. Richter.[33]
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32. Siebold.[36]
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35. Van Duyse and Bribosia[6]
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To these 40 typical cases should be added 11 case of venous tumors of the orbit, which behaved like intermittent exophthalmus, but where there was no exophthalmus.[37] These were reported by:

Andræ.[38]
Foucher and Nélaton.[39]
Magel and Bonfon.[40]
Richet.
Chisolm.[41]
Becker.[7]
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Graefe.[42]
Parrish.
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Morgagni.[43]

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19. Dolgenkow, W.: Tumor cavernosus *orbital sin.* Weshnk Ophth., 1886; ref., Michel's Jahresbericht, 1886, p. 473.

20. Moyart *and* Van Duyse: Zehender's klin. Monats., 1897, p. 168.

21. Ostrowitski, H.: Ueber den intermittierenden exophthal, Inaug. Dissert., Griefswald, 1900.

22. Axenfeld: Diskussion zu Vosius' Vortag über Exophthalmu intermittens auf dem. Ophth. Kongress in Heidelberg, 1897.

23. Meyer, O.: Intermittierenden Exoph. mit. Erbildung un teilweisser Lähmung der äusseren Augemnuskeln klin. Monatsbl f. Augenh., 1898, vol. xxxvi, p. 435.

24. *Böhm*: Ein Fall von *Spontanem* Exophthalmus während d Geburt, Ophthal. Klinik, 1899, p. 3.

25. De Vincentiis, C.: Sull *esoftalmo* da neoplasio dell' orbita ematoma *orbitario-pulsante spontaneo* e *traumatico*, etc., Lavori della clinica ocul. della R. Univ. di Napoli, vol. iv, No. 1, 189 ref., Michel's Jahresbericht f. Ophthalmol., 1894, p. 522.

26. Dunkel: Ueber exophthal. infolge varicöse Erweiterung de orbitalvenen, Inaug. Diss., Eschweiler, 1891.

27. Elschnig, A.: Allgemeine Wiener med. Zeitung, vol. xxxvii 1892, p. 61; ref., Hirschberg's Centrabl. f. Augenheilkunde, 18 p. 558.

28. Gessner, C.: *Enophthalmos dexter* übergehend in exop thalmus bei vorwärts beungen des Kopfes, Hirschberg's Centralb f. Augenheilkunde, 1889, p. 161.

29. Lesshaft, A.: Periodischer Exophthal. des *rechten* A bei beugung des Kopfes, Centralbl. f. prak., Augenheilkunde, 1 *p.* 264.

30. Magnus, H.: Periodischer Exophthalmus sinister bei des Kopfes. Zehend, klin. Monatsbl. f. Augenheilkunde, 18, p

31. Mayer, *Ludwig*: *Ein Fall von* Exophthalmus intermitt Inaug. Diss., München, 1896.

32. Radzwitzki, P.: Ein Fall von Enoph. mit intermitti exophth. Sitzungsbericht des Mosk. Ophth. Vereines Westnik Oph xiv, 3, p. 294; ref. in Nagel's Jahres, über die Leistungen de Ophthal., 1898, vol. xxviii.

33. Richter, P. V.: Ueber intermittierenden Exophthalm Arch. f. Augenheilkunde von Knapp Schweigger, vol xxxi, 31-44, 1895.

34. Schmidt: Ein mit dem Akte anhalterenden inspiratio sammentregender exophth. von Angeborenen varix der Hirn vene, Ophthal. Bibliothek, 1805, *vol. iii, p.* 173.

35. Schwarzchild, H.: A Case of Palimptosis Alternating w Proptosis Following Injury, Med. Record, vol. xli, p. 514; ref. Panas' Traité des Maladies des Yeux, *vol. ii*, Art. Exophthalm

36. V. Siebold-Chiron: Eine der theoretischen, prakti

DISCUSSION

ON PAPERS OF DRS. HANSELL AND POSEY.

Dr. C. R. Holmes, Cincinnati, stated that Mr. Horner, aged 35, in 1892 was treated by him for a chronic catarrhal conjunctivitis. One day Mr. Horner volunteered to give a demonstration, which Dr. Holmes afterwards had him repeat a number of times. Patient stated that this condition had existed for many years and came without any known cause. The eye is rapidly protruded when he holds his breath, stoops forward, or attempts to lift any object from the floor; the ocular conjunctiva becomes congested and the veins of the lids prominent. There is no bruit nor pulsation present, nor could any varix be detected at any point around the globe. Maximum protrusion was about 10 mm. On resuming the erect posture and relaxing the muscles the eye rapidly receded, and there was then, as in nearly all these cases, enophthalmos. The patient stated that he had never suffered any pain, but that when the eye was protruding he experienced a feeling of pressure about the orbit. Ophthalmic examination was negative. Vision equaled 20/20. Dr. Holmes said that the majority of these cases have developed without any known cause, without pain, or any untoward symptom. Some developed in the act of performing labor not at all different from that which they had undertaken hundreds and perhaps thousands of times before and under exactly the same conditions. In Dr. Gruening's case, a man of 45, it came on suddenly, while he was laying a carpet, with a sensation of weight and falling of the eye. On returning to the erect posture the eye returned to normal. In Dr. Elsching's case, a soldier, aged 23, sudden proptosis occurred, with severe pain in the right eye while cleaning his horse. The eye receded on assuming the erect posture. In Dr. Van Santen's case, a woman, 30 years of age, sudden and enormous exophthalmos occurred with hemorrhage into the orbit. The patient had, however, noticed for a year and a half a slight prominence upon stooping. Dr. Holmes stated that the amount of protrusion varies from a very slight prominence to almost complete dislocation of the globe. In Dr. Robert Sattler's case and in Lacompt's case, actual dislocation of the globe took place. That the disease is rare is manifest, as only 40 cases have been reported. Dr. Holmes considers that it is due to a weakening of the coats, and resulting dilatation of the veins, and perhaps of the lymphatics of the orbit, and in the majority of cases causes no serious circulatory disturbances of the globe. It may also be due to a local anatomic defect in the veins and possibly in the muscles, fascia and ligaments of the orbit. Dr. Holmes considers Hugo Sattler's view that there is a predisposition to a general venous dilatation as doubtful, and agrees with Dr. Posey that there must be congenital predisposition of the orbital veins on the affected side favored by the size of the supra-orbital fissure, variations in the valves of the veins and the over or under development of the fascia, muscles, etc. Dr. Holmes considers that it may be readily understood how in some of these cases there is sudden violent attacks of pain with partial immobility of the eye, and at times very severe cerebral symptoms, followed later by hemorrhage and discoloration of the lids—all of which tells very plainly that there is a rupture of the veins with resulting hemorrhage into the orbit, which may or may not lead to choked disc with temporary interference with vision, or permanent atrophy, as in Dr. Meyer's case. The enophthalmos is explained by the atrophy of the orbital contents from pressure.

Dr. J. L. Borsch, Philadelphia, mentioned a case of this kind. The patient, a young woman, consulted him for an exophthalmos, which she said resulted from a severe muscular effort. She had been trying to lift a bureau in her room and immediately experienced a sensation of fullness in her left eye. On looking in the mirror she observed that the eye protruded more than its fellow. At the end of the day the eye assumed its normal position, but would immediately protrude on muscular effort. Dr. Borsch found a venous pulsation in the affected eye—otherwise it was normal; there was no bruit, and vision was normal in both eyes. The patient was quite nervous. Dr. Borsch prescribed tincture of gelsemium and advised prolonged rest in the country. After eight months the condition entirely disappeared.

Dr. G. E. Seaman, Milwaukee, Wis., stated that he has come in contact with four cases of pulsating exophthalmos from injury, fractures of the skull. All four were operated on by ligation of the common carotid, and in three a good result was obtained. In the fourth case, which he saw only incidentally, there was an enormous exophthalmos, the symptoms were very pressing and the eye was removed and the orbit packed, but the hemorrhage immediately following was so severe that an immediate operation, ligation of the common carotid, was done. Almost immediately following this there was a complete hemiplegia of the opposite side, which has persisted to this day, although the operation was several years ago.

Dr. W. H. Wilder, Chicago, referred to three cases of pulsating exophthalmos. One of these was particularly interesting, because the only cause that could be assigned for it was syphilis—fifteen years previously; the pulsating exophthalmos came on suddenly without any traumatism. It was suspected that there was an arteriovenous aneurism as a result of

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erarischen und historischen, Bearbeitung der Chirurgie gewidmete Zeitschrift, vol. iii, Stück 2, Sulzbach, 1814, p. 373.

37. Taken with the other footnotes, the following references make a bibliography that is believed to be complete: Albert, E.: Lehrbuch der Chirurgie u. Operationslehre, 4 Aufl., vol. iii, p. 599, vol. i, p. 125. Artt, F.: Die Krankheiten des Auges, vol. iii, p. 178, Prag., 1856. Gayet: Un cas d'exophtalmie intermittente societe de Chirurgie de Lyon, 1898, 2 June; ref. in ophthal. Klinik, 1899, No. 6, p. 94. Grüss: Wiener med. Presse, 1887, No. 25, p. 884. Himly, E. A. W.: Die Krankheiten und Missbildungen des menschlichen Auges und deren Heilung, vol. i, p. 393, Berlin, 1843. Joequs, R.: Contribution au diagnostic des tumeurs vasculaires de l'orbite, Clinique Ophtalmologique, May, 1895 Idem: Sur un nouveau cas de dilatation veineuse de l'orbite, Clinique Ophtalmologique, August, 1895. Knapp, J. H.: Klin. Monatsbl. f. Augenheilkunde, 1863, p. 163. Koryker, H. A., u. Molder, M. E.: Ein Fall von intermittierendum exophthalmus mit pulsationen des Auges, Leitschrift f. Klin. Medecin, 1899, vol. —, p. 335. Le Moine: Observation de tumeur varigueuse; naevus de la paupiére superieure; cauterization ignee, Recueil d' Ophthalmol., 1887, p. 416; Revue Générale d'ophthalmol., 1887, p. 475, und Michel's Jahresbericht, 1887, p. 433. Cohn, H.: Messungen der Prominenz der Augen Mittelst eines neuen Instrumentes, des exophthalmometers Zehenders klin. Monatsblätt. f. Augenheilkunde, vol. 7, pp. 393, 394. Dictionnaire de Médecin ou Repertoire générale des sciences medicales, Deuxieme edition, vol. xxx, Paris, 1840; Article Maladies de l'orbite, velpeau, vol. xxii, p. 310. Donders, F. C.: Ueber die Stützung der Augen bei Blutandrang durch Atmungsdruck, Gräfe's Arch. f. ophthalmol., vol. xvii, No. 1, pp. 80, 106. Festal: Recherches anatomiques sur les veines de l'orbite, Thése de Paris, 1887. Fischer, J. N.: Lehrbuch der gesammten entzündungen und organischen, Krankheiten des menschlichen Auges, etc., Prag., 1846, p. 361. Ferrari, P.: Ueber die experimentelle verstopfung des sinus Durae Matris, Wiener med. Jahrbücher, 1888, p. 81. Grunert, K.: Ein Fall pulsierendem Enophthal Opthal, Klinik, 1898, No. 15, p. 272, Natchtrag, dazu, No. 23, p. 437. Merkel, Fr.: Handbuch der topographischen Anatomie, vol. i, Braunschweig, 1885 1890. Medicus, Frederick Casimir: Geschichte Periode haltenden, Krankheiten, 1894, pp. 73-82; Frankfurt u. Leipzig bei G. L. Macklot. McKay, R. J.: Nonpulsating Exophthalmus with Recurring Thrombosis of Orbital Veins, Trans. of the Am. Soc., eighteenth annual meeting, 1882, p. 351. Rosas, A.: Handbuch der thearetischen und prak., Augenh., p. 423, Wien, 1830. Schon, M. J. A.: Handbuch der Pathologischen Anatomie des menschl., Auges., Hamburg, 1828. Stellwag, V. Carion: Die Ophthalmologie von naturwissenschaftlichen Standpunke, vol. ii, No. 2, p. 1275. Seggel: Erwähnt in Richter's Aufsatz. Tellias: De l'exopthalmie transitoire ou intermittente, Wecker de Traité complet d'ophthal., vol. iv, article xiii. von Kempf, J.: Periodischen Vorfall des Bulbus Allgem., Wien., med. Zeitung, 1864, vol. ix, p. 131. Weiss, L.: Beiträge zur Anatomie der Orbita, No. 1, Tübingen, 1888. Terson, Jean: De l'enopthalmie et de l'exophthalmie alternantes, Paris, 1897. Van Zantan: Spontane Hämorrhagie in die orbita Nederl. Tydschr. V. Geneesk afd. 1, No. 3; ref., Nagel's Jahresbericht, 1872, p. 427.

38. Andrea, A.: Grundriss der gesamten Augenheilkunde, No. 11, p. 145, Magdeburg, 1837.

39. Foucher: Sur une variété de tumeur l'orbite, Gazette des Hôpitaux, 1858, No. 141.

40. Mayel et A. Boniface d' Anduge: Tumeur veineuse réductible de la paupiére inférieure, Union Medic., 1861, p. 163; ref., d'Annales d'Oculistique, vol. xlv, p. 273.

41. Chisolm, J. J.: Eine variköse Geschwulst des untern Lides, unsichtbar bei aufrecht gehaltenem, sehr gross bei gesenktem Kopf, Arch. f. Augenheilkunde von Knapp-Schweigger, 1891, vol. xxii, pp. 261-264.

42. v. Gräfe: Vereinzeltes über Tumoren, Gräfe's Arch. f. Ophthalmol., vol. xii, No. 2, p. 222.

43. Morgagni, J. B.: De sedibus et causis morborum per anatomen indagatis libli quinque Venetii, 1761, T. I., vol. xiii, No. 6.

group. Although the exophthalmus may in certain cases of intermittent exophthalmus become permanent (Grüning,[10] Dolgenkow,[19] Van Duyse[6] and Moyart,[20] Hitschmann[13] and Ostrowitski[21]), this is the rule in cavernous tumors; pulsation and bruit are also usually present. Finally, while compression of the jugular in cavernous tumors exerts some influence on the degree of the exophthalmus, it is but slight in comparison with that which follows interference with its circulation in the class of cases under discussion. Intermittent exophthalmus may be differentiated from hemorrhages of the orbit by the history, by the discoloration of the globe and lids, and by the rapid disappearance of the exophthalmus; from emphysema of the orbit after fracture, by crepitation and the relatively rapid healing; from exophthalmic goiter by the other cardinal symptoms of that disease, and by the permanent character of the exophthalmus.

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19. Dolgenkow, W.: Tumor cavernosus orbital sin. Weshuk Ophth., 1886; ref., Michel's Jahresbericht, 1886, p. 473.

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21. Ostrowitski, H.: Ueber den intermittierenden exophthal, Inaug. Dissert., Griefswald, 1900.

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30. Magnus, H.: Periodischer Exophthalmus sinister bei beugen des Kopfes. Zehend, klin. Monatsbl. f. Augenheilkunde, 1889,

31. Mayer, Ludwig: Ein Fall von Exophthalmus intermittens Inaug. Diss., München, 1896.

32. Radzwitzki, P.: Ein Fall von Enoph. mit intermittierendem exophth. Sitzungsbericht des Mosk. Ophth. Vereines Westnik O. xiv, 3, p. 294; ref. in Nagel's Jahres, über die Leistungen der Ophthal., 1898, vol. xxviii.

33. Richter, P. V.: Ueber intermittierenden Exophthalmus, Arch. f. Augenheilkunde von Knapp Schweigger, vol xxxi, p. 31-44, 1895.

34. Schmidt: Ein mit dem Akte anhalterenden Inspiration zusammentreqender exophth. von Angeborenen varix der [illegible] vene, Ophthal. Bibliothek, 1805, vol. iii, p. 173.

35. Schwarzchild, H.: A Case of Palimptosis Alternating with Proptosis Following Injury, Med. Record, vol. xli, p. 514; ref. in Panas' Traité des Maladies des Yeux, vol. ii, Art. Enophthalmie,

36. V. Siebold-Chiron: Eine der theoretischen, praktischen

The medical treatment was chiefly nitrate of silver and extract of belladonna; five drops of the saturated solution of potassium iodid was administered at various times, but was badly borne, and after two or three days' trial had to be given up. Extract of opium and antipyrin were used to relieve the pain.

Subsequent History.—After nearly three years of usefulness he returned to Philadelphia with similar symptoms and was put to bed as before under my care in the Presbyterian Hospital. The gastric crises were very distressing and he was reduced to 104 pounds. Under treatment he again improved, and at the end of nine weeks he had risen in weight from 104 to 150 pounds. The same inability to take iodids was noted and the same improvement under nitrate of silver and belladonna was observed in connection with the treatment. Mercuric chlorid, 1/20 gr. twice daily, was administered hypodermically for 5 weeks.

There were no febrile crises in this case. The object in citing so typical a case is to emphasize the great advantage in carrying out the rest treatment in these cases. They should be taken off their feet before they weary themselves by wandering around the streets unconscious of the ordinary sense of muscular fatigue. Massage and electricity supply all the needs of exercise. The faradic or the sinusoidal form of faradic electricity is probably the best for these cases. As they gain flesh and strength, graduated educational exercises should be employed and are very easily carried out. In this case faradism was applied by a rectal electrode for a few minutes daily to relieve the atony and anesthesia of the rectum and anus. This was a trying symptom and gas escaped when it was impossible for the patient to control it. It was not considered necessary in this case to use lavage. The vomiting ceased under the use of a pepsin preparation, with phenacetin and deodorized tincture of opium. How long an interval may be expected before the patient reverts to the unfortunate condition in which I found him, it is impossible to tell. A quiescent period of two or three years is, of course, a great gain, and I have ventured to cite his history to encourage others to confidently treat these cases along similar lines, even in the face of such frightful symptoms as this man presented.

Under date [illegible] ueber die e[illegible] tient reports "improvem[illegible] Durae Matris, Wiener med. Jahro[illegible] K.: Ein Fall pulsierendem Enophthal[illegible] little [illegible], 1885, No. 15, p. 272, Natchtrag. dazu, No. 23, p. [illegible] in Merkel, Fr.: Handbuch der topographischen Anatomie, vol. [illegible], Braunschweig, 1885 1890. Medicus, Frederick Casimir: Geschichte Periode haltenden. Krankheiten, 1894, pp. 73-82; Frankfurt u. Leipzig bei G. L. Macklot. McKay, R. J.: Nonpulsating Exophthalmus with Recurring Thrombosis of Orbital Veins, Trans. of the Am. Soc., eighteenth annual meeting, 1882, p. 351. Rosas, A.: Handbuch der thearetischen und prak., Augenh., p. 423, Wien, 1830. Schon, M. J. A.: Handbuch der Pathologischen Anatomie des menschl., Auges., Hamburg, 1828. Stellwag, V. Carion: Die Ophthalmologie von naturwissenschaftlichen Standpunke, vol. ii, No. 2, p. 1275. Seggel: Erwähnt in Richter's Aufsatz. Tellias: De l'expothalmie transitoire ou intermittente. Wecker de Traité complet d'ophthal., vol. iv, article xiii. von Kempf, J.: Periodischen Vorfall des Bulbus Allgem., Wien., med. Zeitung, 1864, vol. ix, p. 131. Weiss, L.: Beiträge zur Anatomie der Orbita, No. 1, Tübingeff, 1888. Terson, Jean: De l'enopthalmie et de l'exophthalmic alternantes, Paris, 1897. Van Zantan: Spontane Hämorrhagie in die orbita Nederl. Tydschr. V. Geneesk afd. 1, No. 3; ref., Nagel's Jahresbericht, 1872, p. 427.

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Special Article.

IMMUNITY.

CHAPTER IV—Concluded.

Micro-organisms.

The belief that invisible "animalcules" were able to cause morbid processes in man is a very old one. A passage from Varro (116-27 B. C.) reads as follows: "There are swampy places in which grow animals never so small which may not be recognized by the naked eye, and through the air gain access to the body and bring about severe diseases."

The Microscope.

The discovery and use of the compound microscope in the seventeenth century disclosed the reality of the minute living forms which had been so often suspected. Kircher, with his first crude microscope (1646), examined the tissues of various diseases, and was the prolific author of many theories as to their etiology. It is now believed that the magnification of Kircher's microscope was so small that many of the "worms" which he saw were really larger fungus cells and in some instances the as yet undiscovered blood and pus cells.

Leeuwenhoek, with his compound microscope, magnifying 1,000 diameters, described accurately many microscopic forms, but made no application of his discoveries to medical problems. Such application was by no means wanting, however, and the succeeding century and a half saw such voluminous descriptions of microbes, so many contradictory theories and statements, that the "infinitesimally small" fell into disfavor in many quarters as the cause of diseases. The attractions and reasonableness of the theory, however, were such that it continued to gain exponents, and in the early part of the nineteenth century reached a degree of definiteness. In 1855, the great French physician, Brétonneau, affirmed that a specific germ was the cause of every contagious disease. "An epidemic disease can originate and extend only through the agency of the germ producing it." Yet at this time no infection had been proved to be of microbic origin.

Anthrax.

In 1850 Rayer and Devaine made an observation, which probably would have fallen into the oblivion of many preceding ones had it not been confirmed by later observations of importance. They found "small filiform bodies" in the blood of sheep which had died of anthrax, and were naturally inclined to believe that these forms caused the disease. Other students, especially Pasteur and Koch, soon took up the study its [illegible] disease with the result that the small rods of Devaine cular eff[illegible]entifically proved to be its cause.

eye—other [illegible]t minds dominated medical research at this time was normal [illegible]nd Koch. Pasteur, in his early career as a Borsch prescrib chemist, had had his attention called to the rest in the cou. processes of fermentation. He recurred to disappeared. this subject at a time when the theory of

Dr. G. E. Sous generation of small living forms was widely in contact [illegible]d in 1857-1861 proved beyond any possibility injury, fract[illegible] lactic acid, alcoholic and butyric acid fermenligation of t[illegible] due to the action of minute living cells; and, obtained. [illegible], that each particular kind of fermentation had its there was a[illegible] microbe as the cause. This was an example very press[illegible]ve term to-day microbic specificity. Pasteur then but the [illegible]hat he had learned about fermentations to the that an i study of the diseases of wines and beers. was done. He found their causes, and devised a preplete henry. ventive measure, which consisted merely in day, alth the application of the proper degree of heat

Dr. W[illegible]ine before it was stored. At the instance of the sating e[illegible]government, he then studied certain diseases of silking, beca His success in discovering their causes and prevensyphilis-[illegible]t always remain for us one of the landmarks of the came on progress. It was at this time that he took up the that th[illegible] anthrax. The specific microbe having been discovered, and the methods of transmission of the malady made clear, he turned his attention to methods of prevention and, if possible, of cure.

Vaccination.

Anthrax.

Hydrophobia.

Pasteur pondered the question of smallpox vaccination. He came to believe that varioloid was smallpox, the virus of which had been attenuated by its passage through the cow, and that consequently when man was vaccinated he was inoculated with a benign form of the disease. Might not this be an example of a law which would be general in its application? The protective inoculation (active immunization) against the pleuropneumonia of cattle which had long been practiced gave encouragement to this hope. Some work by Toussaint was important in the answer to this question. It was evident that a weakening or attenuation of the bacteria or virus must first be obtained before it could be safely injected into animals for the purpose of producing immunity. Accordingly, Toussaint heated virulent anthrax blood to a temperature of 55 degrees C. for ten minutes and injected the product into a number of sheep. Some animals died of anthrax, while others suffered only a mild attack from which they recovered; the latter were found to be immune to a subsequent inoculation with virulent blood. Inasmuch, however, as some of Toussaint's animals had died of anthrax, Pasteur concluded that there was some grave error in technic. He considered that Toussaint's method probably killed or attenuated the fully-developed bacilli, but did not injure the spores of the parasite (Koch had previously shown the existence of anthrax spores). After much experimentation, Pasteur hit on the plan of growing the bacillus at a temperature of 42 degrees C., obtaining in this way a culture of the fully developed organism which had a low virulence, but which did not form the dangerous spores. When sheep were inoculated with the proper amount of this culture, which became known as anthrax vaccine, they had a mild attack of the disease, which rendered them immune to virulent inoculations. With the possibility of protective inoculation with a known virus actually demonstrated, similar procedures were tried with other animal diseases of known bacterial etiology, with the result that successful vaccines against chicken cholera and swine plague were developed. Pasteur and his co-workers having failed to discover the microbes of plague and cholera, soon turned to the study of another disease which not only destroys many domestic animals, but is at the same time one of the most dreaded diseases which attack man, hydrophobia. All efforts to cultivate the virus from the spinal cord of rabid dogs, which surely is its seat in the affected animal, failed. The unique idea then occurred to consider the infected spinal cord as a fully developed culture of the virus. It remained to subject such a culture to the proper attenuating conditions to weaken or actually to destroy its virulence in order to make it fit for protective injections. This was accomplished by drying the cords in a closed vessel over a hygroscopic substance (solid potassium hydroxid), the final virulence of the cord depending on the length of time it had been subjected to the drying process. The technic of the protective injections, the success of which is household knowledge, will be the subject of later consideration.

Two Important Principles.

By no means of secondary importance, during this period, was the work of Koch on the specific bacteria of tuberculosis, cholera, typhoid and the pyogenic diseases; and not least his improved methods of obtaining pure cultures through the use of solid media (gelatin) on plates. Through his work and that of Pasteur two great principles had been set in motion: the microbic specificity of infectious diseases, and protective inoculation in its generalized form, through the use of attenuated virus.

Theories of the Cause of Immunity.

Exhaustion Theory.

The scientific mind turned at once to the inquiry, What changes take place in an animal's body as the result of the protective inoculation, which render it immune to an infection to which it was formerly susceptible (acquired immunity)? And again, what properties of the tissues or body fluids render one type of animal immune to an infection while another species is subject to attacks of this disease (natural immunity)? Pasteur had observed that if he grew the microbe of chicken cholera in a liquid medium for some time, then removed the bacteria by filtration, the fluid became unfit for the further growth of the organism on subsequent reinoculation. That is, the nutrient material had been used up; and he suggested that this is the case in the animal body. Having undergone the infection, suitable nutrient material for the microbe is used up, and the patient recovers. The disappearance of the proper nutritious substances is assumed to be more or less permanent and consequently renders the animals immune to further attacks. This conception, the exhaustion theory, at one time shared by Koch and Klebs, is still represented in an altered form by Baumgarten, who speaks of an unfavorable culture medium as representing the condition of the immune body, which, of course, is broadly true.

Noxious Retention Theory.

Chauveau was the author of another historic theory of acquired immunity (the noxious retention theory), which was to the effect that during the course of a disease the bacteria produced substances in the presence of which they could not develop further; consequently recovery took place, and the continued presence of these noxious substances made another attack of the disease impossible. Although it is true that bacteria do not grow well in their own metabolic products, theories of immunity on this and similar bases are not in accord with the fact that immunity may be of great duration, and that it may be conferred by the injection of the killed bacteria, or, in some cases, of their non-living soluble products.

Phagocytosis.

Metchnikoff may be credited with having first offered a plausible explanation of natural resistance, founded on observation. As a zoologist he had studied the subject of intracellular digestion in the lower animals, and it was while working on this problem that he observed the fate of a yeast fungus (*Monospora*), which caused epidemics among the daphnia, small, transparent animals with which he was working. In the alimentary tract, which was the infection atrium, some large mesoblastic cells, which are perhaps analogous to the white blood cells, were seen to ingest the parasites and dissolve them. If this took place to a sufficient extent the animals recovered; if, however, the infecting organisms were too numerous or the reaction on the part of the animal insufficient, the body became overwhelmed with parasites and death resulted. Since that time Metchnikoff has evolved his well known theory of phagocytosis as the essential factor in both natural and acquired immunity, a theory which Pasteur, in his later years, looked on with favor. We may speak of this as the cellular theory of immunity; a theory which has had to undergo important modifications in order to bring it into accord with new facts.

Investigations of the Properties of Serums.

Bactericidal Power.

Considering that natural or acquired immunity must exist because of certain qualities of the body cells, or of the body fluids, or possibly of both, investigators began to make analyses of the tissues; and of all the analyses, that which we may term the biologic has been the most fruitful. In this case biologic analysis means the determination of reactions which may occur when bacteria or their products are placed in contact with tissue cells or fluids. The chief of these are the determination of the ability of the serum of an animal to kill bacteria or to neutralize bacterial toxins. These important investigations, still in their infancy, were inaugurated by the findings of Fodor, Nuttall, Nissen, v. Behring and Buchner.

showed that fresh defibrinated blood, and the blood serum of various animals, were able to kill bacteria in the reagent glass. In contrast to the action of ordinary antiseptics, this power is often selective, killing one variety of bacterium and leaving another unharmed. This is of enormous importance, as it would seem to identify the factor on which natural immunity depends. Then followed the discovery of Nissen and v. Behring (*Vibrio metchnikovi*) and of Bouchard (*B. pyocyaneus*), that if an animal is systematically injected, i. e., immunized, with a micro-organism, the power of its serum to kill the bacterium used in the immunization is greatly increased; from which it would seem that acquired immunity depends on the increase of powers which are normally present to a certain degree. These phenomena have to do with the antibacterial or bactericidal power of serum.

Toxins and Antitoxins.

It was a most important step when it was found that the tetanus bacillus (Brieger and Fränkel) and the diphtheria bacillus (Roux and Yersin) secrete each a powerful, specific, soluble toxin, which may be separated from the bacteria by filtration. Immunization with these bacterium-free toxins was undertaken (Behring and Kitasato) with the familiar result of the production of the specific antitoxins.

With these facts in hand, the vigor with which investigations have been pushed may be readily imagined. The hope naturally prevailed that physicians might become the masters of all infectious diseases, through the possession of specific antibacterial and antitoxic serums. But failures, with which we are only too familiar, met the attempts to produce adequate antitoxins for many diseases. Nevertheless, these failures have stimulated investigators to a closer study of various aspects of immunity and the methods by which bacteria cause disease. This has resulted in the acquiring of much knowledge concerning the properties of bacteria, toxins and the immune serums, out of which has grown a new theory of immunity, the "side-chain" theory of Ehrlich.

(*To be continued.*)

Clinical Report.

EXTENSIVE INJURY TO THE SKULL AND BRAIN, PATIENT LIVING NINE DAYS.

EVERETT MINGUS, M.D.
MARSHFIELD, ORE.

I am indebted to Walter Culin, M.D., Coquille, Ore., in whose practice it occurred, for the report of the following case.

I was called August 26 to see a man five miles in the country who had been struck on the head, while working in a logging camp, by an iron hook attached to a heavy chain, the whole weighing about 75 pounds. The accident was occasioned by the hook suddenly giving way while strong traction was being made on it in the direction of the injured person, by a steam engine.

Examination.—On reaching the patient I found an extensive laceration of the scalp covering the left frontal region and brain matter oozing from the wound. A considerable piece of the frontal bone was gone from over the eye. This piece of bone measured 1¼ by 1¾ inches and was lying on the ground some ten feet away from the place where the man was injured. There was also a compound depressed fracture over the anterior superior angle of the left parietal bone. The condition of the patient was that of impending death. Pulse 180, small and thready; Cheyne-Stokes respiration; cold extremities; subnormal temperature and clammy skin. There was injury to the teeth and tongue and escape of blood from the mouth and nose. The scalp wound over the eye extended downward across the inner canthus and involved the lower lid of the left eye. The eyeball was intact but cloudy, and there were signs of interocular hemorrhage. The right eye was unimpaired; the pupil was normal and responded to light. No paralysis of extremities. He passed urine voluntarily and controlled rectal evacuations. Hearing in both ears was normal. Patient was somewhat restless, but obeyed orders from attendants.

Treatment.—In view of the hourly expectation of his death, the extensive nature of his injury, and unfavorable surroundings, nothing was done to the wound with the exception of inserting a few provisional stitches and applying a light dressing.

Subsequent History.—Toward morning of the next day the patient's condition showed improvement, and by 2 p. m., 21 hours after receiving the injury, his pulse fell to 85; temperature, 98.5; respiration, 26, and regular. He responded "yes" and "no" to questions promptly. No vomiting. August 28: Pulse, 85, full and regular; temperature, 100; respiration, 26, and regular. Mental condition unchanged. Tongue swollen and protruding slightly between the teeth. No vomiting. No paralysis of face or of other groups of muscles. No twitching; sensation normal; reflexes intact. August 29: Pulse, 85, full and regular; respiration, 20 and regular; temperature, 100. The wound over the orbit was opened and a considerable mass of protruding brain substance in a necrotic condition was removed by gentle irrigation and sponging. During these manipulations a large blood clot plugging the superior longitudinal sinus became loose, which prohibited further work in that neighborhood. Irritation of the brain substance over the injured area did *not* elicit *any* response, while the same degree of irritation applied to the membranes or skin would cause him to wince his face and raise his hand for protection. He complained of headache. He took 12 ounces of liquid nourishment at one feeding. *August 30:* No change. He took nourishment freely and attempted to explain his feelings, but articulated with difficulty, which was apparently due to injury to his tongue. Edema about right eye and wound is disappearing. He recognizes his friends and calls them by name indistinctly. Says he feels very good with the exception of headache. August 31: No change from previous day. Scalp wounds uniting and swelling about left eye going down. September 1: Pulse, 85; temperature, 100; respiration, 20. He took a newspaper in his hand, read for a half-hour with apparent interest. September 2: Pulse, 120; temperature, 98; respiration, 20. No other change from previous day. September 3: Pulse, 140 and regular; temperature, 100; respiration, 26. September 4: Pulse, 144, irregular and dicrotic; temperature, 99; respiration, 30. Died at 2 p. m. without manifesting any cerebral symptoms.

Autopsy.—An irregular wound of the skin beginning on lower eyelid on left side, thence across inner canthus to the root of the nose, thence upward and outward over the frontal bone to a point corresponding to the beginning of the temporal ridge. A second wound on the left side four inches in length, just behind and parallel to the coronal suture.

Cranium: Two compound comminuted depressed fractures united by a linear fracture. The first and most serious involved the vertical portion of the frontal, orbital ridge, anterior three-fourths of the orbital roof, great wing of the sphenoid, nasal bones, horizontal plate and crista galli of the ethmoid; the second was situated just behind the coronal suture, of irregular outline and one inch square. From it extended a linear fracture into the first one and also one passing over the top of the skull into the right parietal bone for a distance of one and a half inches. The spiculæ of bone from this fracture were driven well into the brain substance.

Brain: Complete destruction of the left frontal lobe. The posterior line of injury passed through the precentral fissure downward and forward, skirting over the ascending and horizontal branches of the anterior limb of the Sylvian fissure. On the basal surface the destruction extended as far back as the middle of the olfactory bulb and on the mesial surface as far as the genu. The superior longitudinal sinus was torn across and thrombosed to a point opposite the coronal suture. The substance of the brain in the injured area was pulpified to such a degree that it could be removed by gentle sponging. The peculiar interest in this case is the survival of the initial shock and the complete absence of sensory, motor and psychical symptoms.

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BREWER'S YEAST FOR PYOGENIC INFECTIONS.

It is stated that the workers in some breweries in France have for many years made use of brewer's yeast in the treatment of acne, furunculosis and malignant pustules. The first mention of this remedy in medical literature is by Mosse, in 1852. Brocq claims that he used yeast on himself in the treatment of recurrent malignant pustules, and was entirely cured, although he had tried many other remedies without obtaining relief. He reports in detail one other case of malignant pustules, three cases of furunculosis and one case of acne, all of which it is alleged were cured with brewer's yeast. Lassar used it in the treatment of furunculosis complicating diabetes, and reports equally satisfactory results. Many other reports may be found in the recent literature, nearly all of which speak highly of this simple remedy. The best results are obtained with fresh brewer's yeast (*Saccharomyces cerevisiæ*), although baker's yeast has also been used. It is taken internally in doses of from a teaspoonful to a dessertspoonful dissolved in a glass of water. This may be drunk during or at the beginning of each meal, three times a day. It is important that the yeast should be fresh, because slight digestive disturbances, and occasionally diarrhea, are produced even by perfectly fresh yeast.

Recently yeast has been locally applied in the treatment of gonorrheal affections in women. It has been used in the form of balls which are introduced into the vagina and also in the form of suppositories which are introduced into the cervix. Some very satisfactory results have been reported from this treatment by Abraham[1] and others. Cronbach,[2] however, does not think that it has any great advantage over the older treatment with antiseptics.

The exact mode of action of this remedy is not clearly understood, although several attempts have been made to throw light on this question by test-tube and animal experiments. Sergent inoculated rabbits with staphylococcus aureus by rubbing the cultures into the shaved skin. This inoculation produced many small furuncles, which healed rapidly under the administration of yeast. The controls always required from four to five days longer for recovery. When large doses of staphylococcus were injected under the skin the rabbits invariably died from the infection. McNair Scott could not notice any difference in favor of the treated rabbits when observing a large number of animals that had been inoculated with staphylococcus. Turro, Tarruella and Presta[3] inoculated six rabbits under the skin of the ear with several drops of a virulent streptococcus. Four of these rabbits were treated with yeast by subcutaneous injections, and the other two got no treatment. All of the animals developed erysipelas of the ear, but those that were treated soon improved and were practically well on the seventh day, while both controls were still becoming worse. One of the controls showed signs of improvement on the tenth day, and made a slow recovery, but the other died of a generalized infection on the eleventh day. Somewhat similar results were obtained from inoculation with *Staphylococcus pyogenes aureus* and *albus*. These investigators, as well as Sergent, were able to produce a fair degree of immunity in rabbits to the pyogenic micrococci, by treating the animals with yeast for a number of days before the inoculation. This immunity, however, was soon lost after discontinuation of the treatment. The serum of animals thus treated acquired high agglutinative properties for streptococci and staphylococci, but was not bactericidal. Extract of yeast cells has not given as satisfactory results as the whole yeast. It would seem from these reports that the administration of yeast has a favorable influence over many mild forms of pyogenic infection, and as it is a very simple and harmless remedy its use can be safely recommended.

WATER DRINKING INDICATIONS AND CONTRA-INDICATIONS.

It is well known that artificial, dry heat causes evaporation of moisture from the bindings of books and from joints of furniture, etc. That it should also cause increased surface evaporation in human beings is not surprising. Hence the necessity for drinking water at intervals during the day, especially for those in whom a certain amount of constipation with a tendency to hard stools shows that there is a diminished amount of water in the system, and that nature is only with difficulty able to carry on certain of her functions requiring water.

As the result of the successful employment of water to relieve many ordinary symptoms, it has become the custom to recommend water very generally and sometimes without sufficient deliberation. For the comparatively well, who need only to supply an equivalent for the moisture that is being lost—particularly through the skin and the lungs—the simple advice to drink plentifully of water is almost sure to be good. In many diseases, moreover, the ingestion of water is an efficient aid to other treatment. For example, in bronchitis, especially if the accompanying cough be hard and ineffective, the taking of large amounts of fluid is usually productive of good results. In fact, it is on this therapeutic principle that the reputation acquired by many of the old home remedies depends. A warm drink taken just before going to bed will often keep a patient from being annoyed by a cough during the night.

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[1] Centralbl. f. Gynäkologie, 1904, xxviii, p. 249. Abstracted in The Journal, April 2, 1904, p. 931.

[2] Ibid., 1904, xxviii, p. 1356. Abstracted in The Journal, Dec. 31, 1904, p. 2054.

[3] Centralbl. f. Bakt., 1903, vol. xxxiv, p. 22.

On the other hand, to recommend abundant drinking of water may be, for patients suffering with some diseases, decidedly poor advice. For example, in the case of cardiac affections with failing compensation, the necessity for an already weakened heart to overcome the resistance of a large amount of fluid in the circulation is certain to invite further deterioration of the heart muscle. One of the well-known and very serious forms of heart disease is the degenerative type which occurs in connection with the drinking of large quantities of such liquors as beer; the result is degeneration of the heart muscle and an extensive dilatation of the heart on account of overwork. It is easy to understand that a large amount of even so innocuous a fluid as water would tend to produce similar results. Whenever, then, there is loss of compensation in a heart that is laboring under some valvular defect, or under some degenerative process, the advice to drink plenty of water should be given with caution.

There is one class of cases, however, in which the unfortunately common custom of recommending the liberal drinking of water is likely to prove even more harmful than in heart disease. The first recommendation that too many physicians make to a patient suffering from almost any form of nephritis, unless there is marked ascites present, is to drink water abundantly. The idea is that in this way the system will be thoroughly "flushed out" and that the toxins in the circulation which may injure the kidneys will be diluted and made less harmful. The exclusive milk diet so often suggested for nephritis is really one expression of this old tradition. It must be remembered, however, that the value of this old-time advice lacks confirmation. Professor von Noorden, in his monograph on nephritis, has particularly insisted on the fact that this advice is often fruitful of more harm than good. In the American edition of his work on nephritis he says that water is always very badly excreted by the kidneys when they are *acutely* diseased, and frequently also in subacute and in subchronic forms of nephritis, though individual cases differ greatly in this respect. He insists that the only possible way to determine whether water, which is in many cases one of the best diuretics we have, is indicated or not, is to determine whether the output of water bears a definite relation to the amount ingested. He adds: "A condition of hydremia must be regarded as a *constant* source of irritation of the kidneys, and the problem that confronts us is to prevent excessive stimulation of these organs as much as possible."

It is evident, therefore, that water drinking, usually a physiologic, a hygienic and a remedial procedure of great value, in special cases may be attended with harm, and that the physician's advice to individuals should be given with reference to the particular case under consideration.

TUMORS OF THE CAROTID GLAND.

For complete obscurity of purpose there is no organ in the body that surpasses, in our present state of knowledge, the carotid gland. The sum total of information concerning its function may be considered as zero. Concerning its structure we are much better informed, thanks particularly to Marchand. Situated in or a trifle behind the bifurcation of the carotid, its greatest dimensions usually are between two and four millimeters, or about the size and shape of a kernel of rice, but it may be much smaller, and, according to some writers, it may be impossible to find it on one or both sides. It is most intimately connected with the sheath of the carotid artery, from which it appears to be developed, appearing rather early and reaching its maximum size in the sixth month of fetal life. Structurally, it is quite vascular, consisting largely of glomerular tufts of small vessels, surrounded by considerable numbers of cells of a distinctly endothelial type derived from the perivascular endothelial structures of the carotid. Such a structure hardly seems to indicate any considerable secretory activity, for the amount of cellular protoplasm is not such as we usually associate with glandular action, although the large number of vessels might lead to a different conclusion. Probably on account of their extremely small size, and a location that renders them practically unavailable for experimental studies, little seems to have been learned about them by the physiologists.

Pathologically, however, they are of interest as the possible starting point for tumor growth, and these tumors present particularly interesting problems to the surgeon. Although the literature contains only about a score of reported cases, yet there is every reason to believe that they are much more frequent than has been generally appreciated. During the past two years, since the special features of these growths have become a little more known, more cases have been reported than can be found in the entire literature before this period. In 1888, Jonathan Hutchinson described them well under the name of "Potato Tumors of the Neck," because of their shape, and brought out their chief characteristics: the location under the sterno-mastoid, the solitary nature, the potato- or kidney-like shape with frequent nodosities, the entirely local nature of the growth, occurrence particularly in men past middle life, and fatal termination usually in from one year to eighteen months. He mentions having seen at least eight cases up to that time. It is only within a very recent time that we have had any general understanding of the characteristics of endothelial tumors, to which these tumors of the carotid gland belong, and this fact accounts for many of the failures to recognize the nature of the growths when they have been removed by surgeons; they can easily be mistaken for hyperplastic or lymphomatous glands in some cases, for sarcomatous glands in others, and even for carcinoma arising in branchial remains. Whenever a surgeon meets a solitary growth arising in close relation with the bifurcation of the carotid, in which it often lies, "like a meal sack," he should consider the possibility of a tumor of the carotid gland. In common with endothelial growths of different origin, these tumors seem to vary greatly in their degree of malignancy. Hutchinson speaks of a fatal occurrence as usual in from twelve to eighteen months, but, on the other hand, many of the reported cases seem to pursue a comparatively benign course; recently, indeed, certain French writers, after a review of the literature, questioned the advisability of operation in view of this apparent benignancy. Because of the intimate relation of the growth with the carotids, it is often impossible to remove it without ligation and resection of the common carotid, a procedure of no inconsiderable danger at the advanced age at which it usually occurs. Even where resection without ligation of the carotid is possible, its advisability is questionable in view of the possibility of recurrence in the carotid sheath within which the tumor originates. Gilford and Davis[1] report three typical and instructive cases which they have observed. In one, the common carotid was ligated and resected with the tumor; hemiplegia resulted and death from pneumonia followed in seven days. In the second case, the tumor was dissected away from the arteries, but in six weeks recurrence in the scar was observed, the growth developing rapidly, ulcerating, and causing death in five months. The third was inoperable, and was unique in being bilateral and in producing metastases in the liver; the patient, a man of 74, died from exhaustion eighteen months after the first appearance of the growth. Here we have illustrated three possible courses for the surgeon, but all failed to save the patient.

It is evidently, in view of these facts, extremely difficult to decide on the proper course of procedure in these cases. Operation is evidently hazardous; non-interference in some cases may be preferable, but in which cases will the growth be malignant and in which benign? Hence it is of the utmost importance that these peculiar tumors should be recognized as entirely different from all other growths arising in the neck, and that every case should be carefully studied and reported until the proper course of management can be determined; a thing now impossible because of our scanty information.

TRUTH AND POETRY CONCERNING URIC ACID.

VI.

Slowly but surely, as we have seen, the truth concerning the formation of uric acid in the body was being found out. An origin from the metabolism of the nuclein of the body cells had been established; the possibility of the formation of uric acid directly from the nucleins or xanthin bases of the foods had been definitely demonstrated; and, as was hinted in the concluding paragraph of our last article, the possibility of a third mode of formation, namely, through synthesis of simpler chemical compounds, began to be considered.

Efforts to solve the problem as to whether or not synthetic formation of uric acid occurs in the body were made in various ways. Some tried to increase uric-acid excretion by feeding substances from which uric acid can be manufactured synthetically outside the body; others by feeding substances which are known to be derived from the decomposition of uric acid within the organism. The earlier experiments of this sort were negative. Horbaczewski, in 1882, tried feeding experiments with glycocoll, but got no marked increase in uric-acid excretion; a similar experiment by Weiss, in 1899, yielded negative results. Minkowski, in 1898, fed lactic acid and urea to dogs in the hope that these bodies might be synthesized to uric acid, but without obvious success. He was led to try the experiment by the fact that in birds from which the liver has been extirpated, the uric acid of the urine is replaced by lactate of ammonia, and, beside, Horbaczewski had synthesized uric acid *in vitro* from trichlorlactic acid and urea. Nor were experiments in which men were fed with these substances more successful (Hermann, 1888; Weiss, 1898).

Despite the discouraging influence of these early attempts at intracorporeal synthesis of uric acid, investigators continued to hope that the proof of the synthetic formation might yet be shown. This hope was fostered by a group of facts which made it seem improbable that the total formation of uric acid in the body can be accounted for without synthesis. Thus it had been shown that the feeding of glycerin increases the amount of uric acid excreted, and some feeding experiments made with fats and carbohydrates pointed to the probable synthetic formation of uric acid, under certain circumstances. The studies of Hopkins and Hope, in 1898, indicated that the excretion of uric acid after meat-eating occurs earlier and ceases sooner than that of other nitrogen compounds. The increase occurs too quickly to be accounted for by the absorption of nuclein, and, further, is not due to sudden excretion dependent on removal of preformed uric acid rendered more soluble. They thought, therefore, that some substance in meat, which can increase the excretion of uric acid, is absorbed by the stomach. Again, in 1899, Wiener showed the capacity of isolated organs to synthesize uric acid. Thus the isolated liver of animals is capable of manufacturing uric acid from an alcoholic extract of various organs, even when this extract is free from nuclein and xanthin bases.

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[1] The Practitioner, 1904, p. 729.

It was to comparative physiology, however, that investigators had to turn for help, in connection with the synthesis of uric acid in the animal body. It had long been known that certain animals, like birds and reptiles, excrete most of their nitrogen not as urea, as in mammals, but as uric acid. In these animals the amount of uric acid excreted varies with the amount of food ingested. It sinks in inanition; it is increased in all conditions which augment proteid metabolism. Substances which, when fed to mammals, are oxidized to urea are excreted in birds as uric acid. All these facts indicated that in birds and reptiles synthesis plays an important rôle in uric-acid formation.

A very important publication was made on this subject in 1886 by Minkowski.[1] This investigator, on extirpating the livers of birds, found that the nitrogen of the urine was present as ammonia, not as uric acid. And since ammonium lactate was present in the urine, he thought it probable that ammonia and lactic acid are important forestages in uric-acid synthesis, and that this synthesis is effected in the liver in birds. The idea soon gained ground that in the synthesis of uric acid two molecules of urea unite with some atom complex containing three carbon atoms, but no nitrogen. Minkowski thought that this non-nitrogenous atom complex is furnished by lactic acid, and his view received some support through the facts that the feeding of lactic acid to birds increases uric-acid excretion (Wiener, 1902), and that when lactic acid is passed through the isolated bird's liver uric acid is formed from it (Kowalewski and Salaskin, 1901).

In view of the high degree of probability that lactic acid takes part in the synthesis of uric acid in birds, it became important that the process should be more closely examined with special reference to its exact nature. Wiener,[2] in 1902, démonstrated that the administration of glycerin of various oxyacids, and especially of dibasic acids (of the aliphatic series) containing three carbon atoms, along with urea, increases markedly the formation of uric acid. Laboratory experiments had shown that urea can unite with dibasic acids containing three carbon atoms to form compounds called ureids, and that certain of these ureids can combine with another molecule of urea to form uric acid. While the feeding of any dibasic acid containing three carbon atoms to birds increases the uric-acid formation, Wiener found that when he used isolated organs only one dibasic acid, namely, tartronic acid (or its ureid) was effectual. He concluded, therefore, that other dibasic acids or their ureids are transformed into the ureid of tartronic acid in the process of uric-acid synthesis. Thus lactic acid (CH_3-CHOH-COOH), he thinks, is first transformed to tartronic acid (COOH-CHOH-COOH), and later unites with urea to form a ureid (dialuric acid), after which the addition of another urea molecule gives rise to uric acid. When the liver of the bird is removed, not only is the synthesis of uric acid itself prevented, but, in addition, the oxidation of lactic acid to tartronic acid is interfered with and ammonium lactate appears in the urine.

The principal mode of formation of uric acid in birds, then, is by the method of synthesis. Birds, however, do form some uric acid in the way in which it is chiefly formed in mammals, namely, through nuclein metabolism and through the transformation of the nucleins and xanthin bases of the food. We feel confident of this, because even after the removal of the liver in birds a little uric acid is excreted, and the feeding of hypoxanthin to birds deprived of their livers increases the amount of uric acid excreted (von Mach, 1888).

The question of a synthetic formation of uric acid in mammals and man now grew more interesting. If there are two modes of formation of the substance in birds, it would seem very probable that there are also two modes in mammals. On feeding lactic acid or dialuric acid (the ureid of tartronic acid) to human beings, Wiener, in 1902, found a slight but distinct increase in the uric-acid output. Now, since lactic acid is known to be one of the intermediary products of metabolism, he concluded that uric acid, under normal conditions, is synthesized, to a certain extent at least, even in man.

Another possible mode of formation of uric acid by the chemical union of simpler bodies is conceivable. It had been known since Strecker's work (1868) that uric acid can be broken up into glycocoll, carbon dioxid and ammonia. Maly suggested, as early as 1872, the possibility of a synthetic production of uric acid in the body from glycocoll, and ten years later Horbaczewski showed that, at any rate *in vitro*, glycocoll and urea can be synthesized to uric acid.

A beautiful experiment in physiologic chemistry, the synthesis by the kidney of benzoic acid and glycocoll with formation of hippuric acid, has for some time been known; it stimulated the imagination of investigators, and the relative excretion of hippuric acid and uric acid began to be watched. Weiss,[3] in 1898, asserted that after eating fruit the uric acid of the urine is decreased and the hippuric acid increased. He sought an explanation in the presence of China acid (tetraoxyhexahydrobenzoic acid) in the fruit, and assumed that the China acid in the body becoming changed into benzoic acid, unites with the available glycocoll to form hippuric acid, and so prevents the synthesis of uric acid from glycocoll. If this idea of Weiss were correct, then, as Wiener points out, all acids which can unite with glycocoll in the body should have the same effect, and benzoic acid itself should act even more definitely than China acid. On administration of benzoic acid, however, though the hippuric acid is increased, there is no decrease in uric-acid excretion (Weiss, Lewandowsky); moreover, salicylic acid, which pairs easily with glycocoll and, according to Weiss' theory, should diminish uric-acid excretion, is held by a whole series of observers to be one of the few drugs which increases it. It has also been shown that hippuric-acid formation goes on entirely independently of uric-acid formation (Weintraud, 1900), so that the doctrine of a competition for the available glycocoll can scarcely longer be held.

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[1] Minkowski, O.: Ueber den Einfluss der Leberextirpation auf den Stoffwechsel, Arch. f. exper. Path. u. Pharmakol., Leipz., vol. xxi, 1886, pp. 41-87.

[2] Wiener, H.: Ueber synthetische Bildung der Harnsäure im Thierkörper, Beitr. z. chem. Physiol. u. Path., vol. ii, 1902, p. 42.

[3] Weiss, J.: Beiträge zur Erforschung der Bedingungen der Harnsäurebildung, Ztschr. f. physiol. chem., vol. xxv, 1898, p. 393.

The question of the synthesis of uric acid from glycocoll in the body, for the present, must be left open. That uric acid is formed, however, to a certain extent synthetically in man and mammals, we think, must be regarded as proved, even though the details of the combining processes are not yet fully understood. Minkowski's and Wiener's ideas have much in their favor, and we should not be surprised if the proof were ultimately brought that the synthesis of uric acid in the liver results from the union of tartronic acid, successively, with two molecules of urea. We are irresistibly led to the conclusion, therefore. that uric acid in the vertebrate animal body is formed both by an analytic and a synthetic process, the former predominating in man and mammals, the latter in birds and reptiles.

THE SMALL DEATH RATE FROM DISEASE IN THE JAPANESE ARMY.

If the facts reported in the newspapers are correct, the present war in Manchuria, especially as regards the Japanese losses, stands alone among the conflicts of modern times. It is said, on the authority of the chief surgeon of General Oku's army, that, out of presumably 100,000 combatants, only 40 died of disease during the seven months' active campaigning ending December 1. Out of 24,642 cases of disease treated, 18,578 recovered in field hospitals or while on duty; 5,609 were sent home for treatment, leaving only a little over 300 still on the army sick list at date of report. Allowing for considerable mortality among the cases sent to base hospitals in Japan these figures are almost if not absolutely record breaking. The fact is still more remarkable when we notice the record of typhoid fever and dysentery, ordinarily two of the most serious disorders of armies in the field. The Japanese figures are given as only 193 cases of the former and 342 of the latter. The medical department of the Japanese army must certainly have the secret of army sanitation. How much is due to racial peculiarities of the Japanese. whom we know to be a specially hardy and reasonably temperate people, is also an interesting question, but one that can not be satisfactorily answered. Of course, due allowance must be made for the fact that the figures on which we comment are by no means official, but it is quite evident that Japan has not had to contend with any very serious illness in the army in the field.

EFFECTIVE LOCAL ORGANIZATION.

Cleveland offered some of the earliest examples of progressive methods in medical organization, and proof of development in this line has been offered in a little brochure, just issued, entitled "The Academy of Medicine of Cleveland—Reports of Officers and Committees—1904." This pamphlet is an inspiration to hearty co-operative work, and should be read especially by those connected with similar societies. The reports can not adequately be summarized, but a few points may be noted to show the range of the work done. A special committee interviewed the newspaper editors regarding the protection of the members of the society from objectionable publicity. The regulation of ambulance service was considered, unethical medical institutions were investigated by a committee, and a city ordinance was secured that reduced the casualties of the Fourth of July celebration. The project for the academy and library to own a permanent home that would conveniently house all the medical activities also was considered. Remarkably good results were attained by a systematic canvass for new members, and the financial report is excellent. The report of the legislative committee is peculiarly interesting and instructive. The work of the committee on public health continues to be a model of efficiency. It holds regular weekly meetings, to which the president of the board of health and the health officer have a standing invitation. Thus the society has kept in close touch with the civic health, and it has exerted great influence in this direction on the city officials and citizens generally. The work of the academy, as a whole, has been crowned with success, and this success should stimulate like efforts in other towns and cities.

ERRORS IN OBSERVATION.

The physician is thoroughly conversant with the fact that observation is apt to be erroneous, and that the patient's story must often be liberally interpreted in accordance with other facts observed. Some interesting experiments are reported in the Berlin *Blätter für Volksgesundheitspflege.* Dr. L. W. Stern of Breslau examined twenty-four pupils concerning the details of an assembly room in which the class had met eight days before. The questions concerned the number of windows and doors, whether or not the windows were barred, etc. The results showed that every fifth statement was positively false; but that statements under oath were slightly more accurate. For example, the percentage of error was from 18 to 27 per cent. in ordinary statements, and from 8 to 10 per cent. under oath. In another experiment, a man entered the room, spoke to the instructor, handed him a manuscript, asked permission to consult a case of books in the room; took from this case a book which he read for five minutes, left the room with the book in his possession, etc. Eight days later, the spectators were asked to describe the whole proceeding. The positive statements were one-fourth false; statements as to what was said, one-third false. Dr. Stern says that the reports together formed "such a chaos of contradictory statements that if a judge had merely these statements to form an opinion by he could not possibly reach any conclusion." These experiments are interesting. We have before referred to a similar experiment in which a quarrel took place in a clinical amphitheater, and the students were examined concerning the details some days afterward. These results lend emphasis to the necessity for careful consideration of all facts in diagnosis, and the danger of placing too great dependence on any one statement by the patient which may be the crucial point of any decision.

THE DEPENDENT EPILEPTIC

While it is gratifying to note the increased interest shown in late years in the public care of epileptics, the care of these patients still lacks much of being what it should be. To Ohio belongs the credit of taking the lead in this matter, when she established, in 1890, the Ohio Hospital for Epileptics at Gallipolis, where 1,000 patients are now being cared for. According to recent reports, the capacity of the Ohio Hospital should be increased, for on Feb. 1, 1905, there were 250 patients awaiting admission, while the total epileptic population of the state, most of whom will probably become public charges sooner or later, is estimated at 2,750. New York State followed next in order, by founding, in 1894, the Craig Colony at Sonyea in Livingston County, which is still the only institution in the United States strictly along colony lines. At the Sonyea institution there are 1,006 patients, and nearly as many more are on the waiting list. The estimated epileptic population in New York State is 14,000. Sonyea is about to make provision for 250 additional patients, and it expects ultimately to care for 1,800 or 2,000 on its extensive area of 1,895 acres. Almost coincidently with New York, Massachusetts took up the question, and the Hospital for Epileptics at Palmer reflects the practical interest shown in that state. The number of patients at Palmer has reached 500, and there are 200 awaiting admission. The estimated epileptic population of Massachusetts is 10,000. The New Jersey Village for Epileptics at Skillman, near Princeton, was the fourth state institution to be founded. It now has 150 patients with 450 on the waiting list. The estimated number of epileptics in New Jersey is computed at not less than 2,500. Texas and Kansas are the most recent recruits among the states in this work. On a tract of 640 acres at Abilene, Texas, there has recently been established an epileptic colony that now has 220 patients, with a waiting list of 300, while it is estimated that there are 1,000 other dependent epileptics in the "Lone Star State." The State Hospital for Epileptics at Parsons, Kans., was opened a short time ago. It already has 200 patients, and, like the other institutions mentioned, it has a large waiting list. Indiana is now in line, for the higher branch of its legislature has appropriated $150,000 with which to begin the building of a colony for epileptics in that state. The Indiana bill provides a tract of not less than 1,000 acres of land at the outset. Most public institutions of this kind start with too small an acreage, and it is gratifying to learn that Indiana intends to avoid this particular mistake.

THE EARLY PUBLICATION OF THE RESULTS OF ORIGINAL RESEARCH.

Of all the various kinds of articles published in medical journals, the most important, all things considered, is the article embodying results of real investigative work, whatever the field occupied may be, in which a real effort has been made to enlarge the bounds of knowledge concerning the problems studied. This is the kind of article that the great American medical public as yet appreciates the least, and we fear that sometimes even medical editors are a little slow in grasping its value. In this country, in particular, medicine needs work of this kind, because we have been so much occupied with organization and with the necessary teaching of old knowledge that there has not been energy and opportunity enough to furnish what would seem to be a creditable share of new knowledge. Consequently, we have become good compilers and facile writers, which at times may be detrimental to critical penetration. It may be taken for granted that no well-educated physician will ever doubt the ultimate practical value of "the knowledge that ripens on the tree of medical science." It takes so long before the new fact, the new point of view, become part and parcel of general medical knowledge that no time should be lost in starting the new fact, or the new idea, on its career of increasing the usefulness of the medical profession. In many quarters doubt, uncertainty and opposition may be aroused by the publication of new work, and this may result in quickening of the investigative activities in many laboratories and clinics. Almost without exception, good new work is sure to prove of direct benefit to other workers in the same and in related fields. A large share of excellent, often epoch-making, investigative work in medicine has been done, and no doubt will continue to be done by comparatively young investigators. To many of them, the satisfaction incident to publicity may be the sole, immediate reward for many hours of patient toil in some obscure corner. Consequently, there is no good reason for unnecessary delay in the publication of the results of investigative work carried to a proper and natural finish. Everything speaks in favor of prompt publication, and in the case of general medical journals, articles of this kind, especially when it concerns problems in preventive and practical medicine, should have the right of way over those that do not present original work at first hand.

Medical News.

DELAWARE.

Voodoo Doctor Sentenced.—Daniel Hector, a colored voodoo doctor, pleaded guilty of witchcraft and fortune telling. He was sentenced, February 10, to be imprisoned for nine months and to stand in the pillory for one hour.

Personal.—Dr. Charles P. White, Wilmington, has been appointed assistant medical examiner for the Pennsylvania system at Pittsburg.——Dr. Samuel G. Elberts was thrown from his carriage, February 7, and broke his arm.——Dr. Joseph M. Martin, Lewes, was operated on for appendicitis, January 28.——Dr. John C. Fahey, former mayor of Wilmington, was operated on for abscess of the throat, February 3.

ILLINOIS.

Measles is reported to be epidemic at Curran.

Epidemic Disease at Lacon.—For the second time within three months, Lacon is suffering from an epidemic of scarlet fever, and now diphtheria also has appeared. The public schools have been ordered closed.

Board Increases Scope.—The scope of the work of the laboratory of the State Board of Health is to be so increased that it will become of greater benefit to the physicians of the state. With this end in view, container stations will be established in every county of the state where containers for bacteriologic specimens and blank forms for transmission may be secured in the shortest possible time. It is probable that these containers will be placed in the hands of the secretaries of county medical societies for distribution.

Chicago.

President Harper Ill.—President William R. Harper of the University of Chicago, who was operated on for appendicitis in March last, and who has been ill since September, is suffering from a tumor of the cecum. Dr. Harper's condition is causing his medical advisers great concern, and it is possible that operative interference may be necessary.

Smallpox is Marching On.—During the week 27 cases of smallpox were sent to the Isolation Hospital. Four had old scars said to be from vaccinations made in childhood, but had never been revaccinated; 23 never had been vaccinated at all; 7 were unvaccinated children under the school age of 6 years. Twelve of the patients came from the downtown lodging-houses.

Deaths of the Week.—During the week ended February 11 there were 554 deaths reported, equivalent to an annual mortality of 14.50 per 1,000. The rate for the previous week was 13.88, and for the corresponding week of 1904, 17.88. Pneumonia, as usual, leads, with 118 deaths; then follow consumption, with 68; bronchitis with 40; heart disease [illegible]7; Bright's disease with 32, and violence with 30. Smallp [illegible]

are two librarians and the collection is open to readers from 9 a. m. to 5 p. m. daily. The library is a circulating one, and all the privileges of it can be secured by any physician by the payment of $2 a year. The collection has had a continuous existence since 1813, and is, therefore, one of the oldest medical libraries in America. It is also one of the best and best conducted, having a very complete card catalogue. Recent additions have been the library of the late Dr. A. H. Powell, and a large part of that of the late Dr. Julian J. Chisolm. At present it occupies a suite of rooms in the main university building, but it will be moved in the spring to larger and better quarters. The collection is especially rich in rare works of the sixteenth and seventeenth centuries, the original nucleus purchased on the death of Dr. John Crawford.

MASSACHUSETTS.

Hospital Improvements at Waltham.—Several improvements are to be made in the Waltham Hospital. About $75,000 will be expended in remodeling the interior of the administration building and the addition of an engineer's room.

Died Outside Hospital Gate.—Newspapers have been criticizing the management of the Massachusetts General Hospital because of the refusal of the office attendant to do anything for a man who had fallen unconscious just outside their gate When the police were summoned and he was carried in by them he was found to be dead.

Health Appropriations.—Mayor Collins of Boston recommends the following appropriations: Bath Department, $160,000; Health Department, $200,000; Hospital Department, $485,000; Children's Institution Department, $188,000; Insane Hospital De[illegible]ent, $169,000; Pauper Institutions Department, $20[illegible] Water Department, $904,309. This is an increa[illegible]0 to [illegible] Bath Department and of $4,000 to the [illegible]rtm[illegible]le the Hospital Department remains [illegible] and [illegible] a net decrease in the Insane Hosp[illegible]000, owing to the assumption of the [illegible]e of this [illegible]s of patients.

before this body, and have dwarfed every other issue now before the legislature. The whole subject of water supply, as it affects New York City, will be thrashed out before the several committees or joint hearings next week.——A bill has been introduced to regulate the practice of osteopathy along the lines prescribed for regular medicine. It provides for the appointment by the regents of a board of five examiners from a list to be submitted each year by the New York Osteopathic Society. It specifies in what subjects candidates shall be examined, and provides that such candidates must be graduates of a twenty-seven months' course at a regular school of osteopathy. The maximum penalty for practicing osteopathy without a license is fixed at $250 fine or six months' imprisonment for the first offense, and twice that amount for subsequent offenses. A similar bill was defeated two years ago in committee.——The Senate Cities Committee has reported favorably on the Elsberg bill abolishing the coroners in New York City. The bill will probably pass the senate next week. ——A bill has been introduced in the legislature which abolishes the boards of visitation and creates local boards of seven members each, to be appointed by the governor and removed by him, to serve without compensation. Control of expenditures and the general supervision are still to rest in the State Commission in Lunacy.

Buffalo.

Measles in Asylum.—There are 62 cases of measles at the Buffalo Orphan Asylum.

Appointments.—Mayor Knight has appointed Drs. Lawrence G. Hanley and George H. McMichael civil service commissioners.

Cigar Makers Have Phthisis.—It is stated that 50 per cent. of all workers in cigar factories in Buffalo ultimately die of consumption.

Consumptive Domiciles.—A list of all houses showing more than one death from consumption has been submitted to the health department by the charity organization committee on tenements, there being 146 houses of the kind. Much work has been done in fumigating such places. The committee has a card index of all such cases.

Milk Inspection.—According to investigations made by Health Commissioner Greene there are about 800 milk dealers outside of the city who send their milk to Buffalo. The aggregate amount of milk thus obtained is 9,000.000 gallons per year. He desires the ordinance changed so that five additional milk inspectors and one assistant bacteriologist may be appointed for Buffalo.

New York City.

New Health Officer for Brooklyn.—Dr. Thomas L. Fogarty has been appointed assistant sanitary superintendent for the Borough of Brooklyn.

Cerebrospinal Meningitis.—This disease has gained such prevalence during the past month among the children that physicians fear a return of the epidemic of a year ago.

City Raises Salaries.— The salaries of many employes in city departments have been materially increased. The health department has received $15,494 for this purpose; Bellevue and the allied hospitals $6,868, and the department of charities $11,000.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 4, 343 cases of tuberculosis, with 180 deaths; 311 cases of diphtheria, with 49 deaths; 233 cases of scarlet fever, with 15 deaths; 185 cases of measles, with 8 deaths; 135 cases of chickenpox; 32 cases of typhoid fever, with 10 deaths; 1 case of smallpox, with 1 death; and 33 deaths from cerebrospinal meningitis. This is a total of 1.240 cases and 296 deaths.

War Against Spitters.—The health department has begun work against the spitters in earnest. Twenty-five sanitary squad policemen have been detailed to look after this class of offenders during the evenings in the streets of the city. A large number of arrests were made during the first evening, among them two in the lobby of the Metropolitan Opera House. Hitherto offenders have been warned and only arrested when they failed to obey, but henceforth no warning will be given.

Food Adulteration.—At a meeting of the New York Health Protective Association, February 8, Dr. R. E. Doolittle of the United States Department of Agriculture showed samples of various adulterated articles of food. He said that most of the jellies sold by grocers came from the refuse of dried apple factories and consisted of starch paste, sweetened with glucose, colored with coal-tar dyes, flavored with chemicals and preserved with salicylic acid. Coffee was adulterated with chicory, pea hulls and wheat middlings, many flavorings are about 90 per cent. wood alcohol, cream of tartar is plaster and phosphate of lime, etc. The members of the association thought that as we were protected against adulterated imported articles, it would be better to use imported products of this class, and thus bring our home manufacturers to see that it would be to their advantage to furnish a pure article. The influence of the Health Protective Association was sought for the purpose of urging the passage of the food bill now before congress.

OHIO.

Hospital Notes.—Elyria Hospital was formally opened January 23, with a public reception. The institution has accommodation for twenty patients.——Columbus Children's Hospital will receive more than a quarter of a million dollars by the will of the late William W. Franklin.

Library Association Meeting.—At the second annual meeting of the Cincinnati Medical Library Association, Dr. Henry W. Bettmann was elected president; Dr. Joseph Eichberg, vice-president; Dr. Alfred Friedlander, secretary; Dr. William H. Crane, treasurer, and Dr. Arch I. Carson, librarian.

State Board Will Aid in Diagnosis.—To aid physicians in making a diagnosis in suspected or doubtful cases of certain of the infectious diseases, and thereby to enable the health authorities better to control them, the State Board of Health offers to make examinations free of charge, on the request of any physician, of specimens from suspected cases of pulmonary tuberculosis, diphtheria or typhoid fever.

Academy Election.—At the annual meeting of the Academy of Medicine of Toledo and Lucas County, January 18, the following officers were elected: Dr. Thomas Hubbard, president; Dr. William G. Dice, vice-president; Dr. Louis A. Levison, secretary; Dr. John G. Keller, treasurer; Dr. James A. Duncan, financial secretary, and Drs. William J. Gillette, Oscar Hasencamp, Herbert E. Smead and William H. Fisher, censors, all of Toledo.

Personal.—Dr. Joel B. Taylor has been appointed a member of the Marion Board of Health, vice Dr. Elmer O. Richardson, resigned.——Dr. William C. Heintz, Columbus, is ill with typhoid fever at Grant Hospital in that city.——Dr. John C. Reeve, Dayton, was the guest of honor at a banquet, February 9.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and committed to the State Hospital for the Insane.——Dr. Robert C. Chamberlain, Tiffin, has been elected physician to the Seneca County Infirmary.——Dr. Harry E. Welch, Youngstown, has been made local surgeon for the Erie Railway, between Girard and Hubbard.——Dr. George C. Altmeier, Cincinnati, has been appointed district physician of the twenty-second ward, vice Dr. Augustus J. Hofling, deceased.——Dr. Edward S. Johnston, Cincinnati, who was recently operated on for appendicitis, is making satisfactory progress toward recovery.

PENNSYLVANIA.

Personal.—Dr. J. C. Biddle, superintendent of the State Miners' Hospital at Ashland, was thrown from his sleigh on January 30, and severely injured.

Norristown's Vital Statistics.—The annual report of the bureau of vital statistics shows that there were 402 deaths last year, an increase of 68 over the preceding year, and 350 births, an increase of 50 over 1903.

Smallpox at Portage.—Smallpox threatens to become epidemic at Portage, Cambria County. Several new cases have been reported, and it is asserted that more than a score of patients are afflicted. The State Board of Health has ordered the town authorities to provide an isolation hospital, and unless this order is complied with, the town may be quarantined.

Chicken-pox at Gettysburg.—The cases of supposed smallpox reported in Gettysburg College have been pronounced by Dr. William M. Welch, of the Municipal Hospital, Philadelphia, to be typical cases of chicken-pox. Dr. Welch made the investigation for the board of health at the request of the college faculty. The cases were first reported in the lay press to be smallpox.

Philadelphia.

Personal.—Dr. Frank C. Parker was elected assistant surgeon at the Wills Eye Hospital, vice Dr. Archibald G. Thomson, resigned.

Lectures on Care of Teeth.—On Fridays in March the public school children and their parents are to be enlightened on the care of the teeth by a series of talks, to be given in the school buildings throughout the city by Dr. J. Ashley Faught.

Spring Will Soon Be Here.—As a result of the persistent complaints of the patrons of the city trolley cars as to their unheated and insanitary condition, the president of the traction company has promised that in a short time all cars of the city shall be properly heated.

Bequests.—By the will of Mary C. Dulles, a contingent bequest of $10,000 is made for the maintenance of the Margaret Welch Dulles Memorial ward in the Presbyterian Hospital. The will also bequeathes $2,000 for improvements to the Presbyterian Hospital; the Childrens' Seashore Home receives $1,000, and Day Nursery $1,000, and the Presbyterian Orphanage, $2,500.

Explosion at Samaritan Hospital.—An explosion of ether occurred in the operating room in the Samaritan Hospital, February 10, during a tracheotomy. Oxygen used in the operation blew the ether into the gas flame, resulting in its explosion. Dr. H. C. Cunningham, the resident physician and anesthetizer, and Dr. H. A. Duncan were rather severely burned. Two medical students were also slightly burned. The patient was uninjured.

Hospital Reports.—Report of the hospitals for January are as follows: The Polyclinic Hospital admitted 124 patients to the wards, and treated 1,280 new cases in the dispensary; a total of 6,103 patients were treated in the different dispensaries, and 593 accident cases were received.——The Medico-Chirurgical Hospital treated a total of 5,438 patients.——One hundred and eighty-three patients were admitted to the wards of St. Agnes Hospital, and the total number treated in the different dispensaries aggregated 2,366.

Health Report.—The total number of deaths from all causes for the week ended February 4 aggregated 538. This is an increase of 39 over those of last week and a decrease of 85 as compared with those of the corresponding period of last year. About one-third of the deaths resulted from lung affections. Of these, 100 deaths resulted from pneumonia and 56 from pulmonary tuberculosis. There were 22 deaths from cancer, 25 from apoplexy, 61 from heart disease, 47 from Bright's disease, 20 from enteritis, and 7 from typhoid fever. There were 188 cases of contagious disease reported, with 20 deaths, as compared with 207 cases and 23 deaths for the preceding 7 days. The total number of deaths reported for last week was 612. This is an increase of 74 over those of last week, and an increase of 44 over the corresponding period of last year. One hundred and seventeen deaths resulted from pneumonia alone, which is an increase of 35 over those of last week. The deaths from tuberculosis were also unusually high, numbering 67. Influenza caused 13 deaths. Several other deaths resulted from acute inflammation of the respiratory tract, which also should probably be classified with the deaths resulting from pneumonia; 15 of these were reported as congestion of the lung, and 19 from acute bronchitis. The deaths from disease of the respiratory tract aggregate more than one-fourth of the entire number of deaths from all causes. The principal causes of death were as follows: typhoid fever, 8; diphtheria, 11; influenza, 13: tuberculosis, 67: cancer, 13: apoplexy, 26; heart disease, 71; inflammation of respiratory tract, 152; Bright's disease, 50; senility, 24. The contagious disease cases reported number 199, with 23 deaths, as compared with 208 cases and 20 deaths for the preceding week. There were 19 cases of typhoid fever reported.

Jewish Hospital Staff.—The following physicians have been appointed for the ensuing year to the staff of the Jewish Hospital by the president, William B. Hackenburg: Consulting surgeons—Drs. William W. Keen, J. William White, John B. Roberts, Edward E. Montgomery, Orville Horwitz, John M. Baldy, and Charles P. Noble. Surgeons—Drs. Benjamin B. Wilson, Lewis W. Steinbach, William H. Teller, William L. Rodman, Max J. Stern, and Melvin M. Franklin. Orthopedic surgeon—Dr. DeForest Willard. Ophthalmologists—Drs. Isaac Leopold and Jay C. Knipe. Neurologists—Drs. Francis X. Dercum and Max H. Bochroch. Otologists—Drs. S. MacCuen Smith and Eli L. Klopp. Laryngologists—Drs. Arthur W. Watson and Louis Jurist. Obstetrician—Dr. William H. Randle. Pediatrists—Drs. Thompson S. Wescott, Ludwig Loeb and Joseph B. Potsdamer. Pathologist—Dr. Courtland Y. White. Dermatologist—Dr. Jay F. Schamberg. Radiologist—Dr. Sydney L. Feldstein. Consulting physicians—Drs. John H. Musser, James Tyson, James C. Wilson, Roland G. Curtin, Alfred Stengel, James M. Anders, and Lawrence F. Flick. Consulting pediatrist—Dr. J. P. Crozer Griffith. Physicians—Drs. Adolph Feldstein, Thomas Betts, Solomon Solis-Cohen, William A. Cross, Francis X. Dercum, David Riesman and Courtland Y. White. Assistant physicians—Drs. Moses H. Behrend, Bernard Kohn, William A. Rocap, Edwin I. Becker, Victor A. Loeb, Maurice J. Karpeles, Harry F. Webster, Myer Solis-Cohen, George P. Katzenstein, Louis H. Jacobs, Milton K. Myers, William Shields, George W. Cook, Samuel Leopold, Mortimer Herzberg and Robert F. Ridpath. Chief resident physician—Dr. Edwin A. Jarecki.

Bills Before the Legislature.—A bill suggested by Coroner Dugan, as a result of several recent sensational murder trials, will be introduced into the legislature asking the prohibition of the use of embalming fluids containing arsenic, mercury or carbolic acid, and asking that these agents shall not be used in the preservation of dead bodies and shall not be used in embalming fluids. Among other bills introduced is one making vaccination compulsory on all persons who have not been successfully vaccinated within 5 years, and providing for arrest and fine for violation of the law. Another health bill requires the examination and licensing of midwives. A bill relating to vital statistics has been presented, making failure of midwives or physicians to report births, clergymen or magistrates to report marriages, or physicians to report deaths a misdemeanor. The most important bill introduced is one giving absolute power to the boards of health of all cities, counties, townships and boroughs, in dealing with cases of contagious disease. There are included in the list of contagious disease, beside smallpox, diphtheria and scarlet fever, such maladies as chicken-pox, measles, mumps, whooping cough, influenza and pneumonia. In all cases the boards are to have power to make rules and regulations governing reports to be made by persons attending the sick, the quarantining and disinfecting of persons and premises, the placarding of notices, and the placing of guards to enforce the same; the total destruction of infected bedding, clothing or other articles; the care and burial of persons who may have died from these diseases; fixing the limit of time for burial; methods to be used in advertising the funeral; the disinfection of all conveyances used in the burial; the attendance of persons at public and private schools, and the compulsory vaccination of all persons employed therein.

Tuberculosis Decreasing.—According to the statement made in the first annual report of the Henry Phipps Institute, tuberculosis is on the decrease in this city. This statement is based on the results of investigation of the official records from 1861 to 1903, inclusive. The report shows a rapid decrease from 1887 to 1897, inclusive, a slight decrease prior to 1887 and a slight increase after 1897. In 1870 the mortality from the disease was the highest, the death rate being 3.78 for 1,000. The report attributes this to the influence of the Civil War, which had just closed. From 1871 to 1874 there was a steady decline, but from 1874 to 1876 there was an increase of 0.37 per 1,000. This may have been accounted for, they claim, by the large number of persons visiting the city during the exposition and by the epidemic of smallpox in 1872. The apparent decrease from 1876 to 1880 is not a true one. It was estimated on the figures published by the board of health, which were disproved by the census of 1880. The mortality in 1880 was 3.27 per 1,000. From that time to 1902 there has been a continual decrease, but in 1903 there was an increase of 0.12 per 1,000. This slight increase may be due in part to a great increase in emigration from Russia and Poland, it having been double that of the ten previous years. The principal cause, however, they believe, is the accuracy in diagnosis through the bacteriologic department of the board of health. The report further shows that in 1903, 2,030 patients were received and treated in the Henry Phipps Institute; of these 1,130 were native born, 769 were foreign born, and 140 had no nativity record. Many of the foreign-born had been in this country so short a time that it was assumed they had the disease when they landed here. The number of negroes admitted was about 6½ per cent. of the whole number, but the proportion of negro admissions to white admissions was greater than is the proportion of the negro to the white population of the city. The longest stay of any patient in the hospital was 286 days, and although this was an advanced case the patient improved steadily. The results of treatment show that 537 cases were reported improved, 583 unimproved, 881 not recorded, and 153 died. The report also contains a paper on "The History of the Tuberculosis Work at Saranac Lake," by

Dr. Edward L. Trudeau; one on the "Home and Its Relation to the Tuberculosis Problem," by Dr. William Osler; "Pulmonary Tuberculosis," by Dr. G. Sims Woodhead of London, Eng.; "The Administrative Control of Tuberculosis," by Dr. Herman M. Biggs, and "Specific Therapy of Tuberculosis," and "Vaccination Against the Disease," by Dr. Edward Maragliano of Italy. The first report is very complete, and shows that the work of the year has been most thorough.

RHODE ISLAND.

Accidental Asphyxiation.—Dr. Elmer B. Eddy, Olneyville, Providence, was found unconscious in his office, January 30, from gas asphyxiation. After an hour's work Dr. Austin H. Longfellow pronounced Dr. Eddy out of danger.

Election at Newport.—The Newport Medical Society, at its annual meeting, elected the following officers: Dr. Christopher F. Barker, president; Dr. V. Mott Francis, vice-president; Dr. Mary E. Baldwin, secretary; Dr. Douglas P. A. Jacoby, treasurer; Dr. Harry J. Knapp, curator; Dr. William A. Sherman, bacteriologist; Drs. V. Mott Francis, William S. Sherman, and Samuel P. Cottrell, executive committee, and Drs. William S. Sherman, Douglas P. A. Jacoby, and Stephen C. Powell, censors.

TENNESSEE.

Hospital To Be Built.—A permit has been issued for the building of a hospital for the Tennessee Medical College, Knoxville, to cost $30,000.

Personal.—Dr. J. Sinclair Dye has been appointed to succeed himself as city physician of Chattanooga.——F. Emmett Downey, a member of the senior class of the medical department of Grant University, Chattanooga, died recently at the Erlanger Hospital in that city, after an illness of two weeks, aged 22.

Trouble at Knoxville General Hospital.—In consideration of the open antagonism of W. P. Chamberlain, chairman of the board of governors of the Knoxville General Hospital, Drs. Charles P. McNabb, Samuel M. Miller, Benjamin B. Cates, Ernest R. Zemp, Walter S. Nash, Samuel L. Jones, Benjamin F. Young, and A. G. Kern have resigned from the staff of the institution.

Hospital Staff Enlarged.—The staff of Erlanger Hospital, Chattanooga, has been increased by ten, five of whom, Drs. William T. Hope, William A. Applegate, Frank T. Smith, Philander D. Sims and L. Y. Green are selected from the faculty of the medical department of the Grant University, and will serve from October, 1905, to April, 1906. The other five, selected from the Chattanooga and Hamilton County Medical Society, will go on duty April 1, 1905, and serve until October 1. They are Drs. Clarence A. Cobleigh, Abraham W. Boyd, Thomas E. Abernathy, Edward B. Wise and Young L. Abernathy.

Society News.—Humphreys County Medical Association, at its annual meeting, elected Dr. James J. Teas, Bakerville, president; Dr. W. R. Horner, Clydeton, vice-president, and Dr. Claude C. Sullivan, Waverly, secretary and treasurer.——At its annual meeting, the Rutherford County Medical Society elected Dr. Enoch H. Jones, Murfreesboro, president; Dr. Edgar C. Freas, Lascassas, vice-president; Dr. Rufus Pitts, Murfreesboro, secretary; Dr. Vernon K. Earthman, treasurer; Dr. Edgar C. Freas, Lascassas, delegate to the Tennessee State Medical Association; Dr. Harry C. Reese, Murfreesboro, alternate, and Dr. James B. Murfree, Sr., Murfreesboro, censor.

TEXAS.

La Grippe is said to be epidemic at Denton, where 1,200 cases are reported, and at Taylor, where, it is said, there are 700 cases.

Sanitarium Opened.—Providence Sanitarium, Waco, built and equipped by the Sisters of St. Vincent de Paul at Dallas, at a cost of $150,000, was formally opened January 11.

Smallpox.—At Eddy the disease is prevalent and a strict quarantine is maintained.——Miles has had about 50 cases, without a death.——The city health officer of Rockdale, on January 29, in a house-to-house visitation, vaccinated 200 negroes. The disease is confined to the negro population.——Mail delivery at Hartzo has been stopped by the postoffice department on account of the prevalence of the disease, which made its appearance at the postoffice building.

Quarantine Officers Named.—On the recommendation of Dr. George R. Tabor, state health officer, the governor has appointed the following state quarantine officers: Dr. Edgar F. McClendon of Bastrop County, at Galveston; Bartlett N. Sims of Kendall County, at El Paso; P. J. Shaver of Hunt County, at Sabine; John M. McKnight of Webb County, at Laredo; Isaac H. Brewton of Val Verde County, at Eagle Pass; J. H. Florence of Dallas County, at Brownsville; T. J. McFarland of Lavaca County, at Pass Cavallo; John F. Eaves of Brazos County, at Aransas Pass, and Benjamin H. Carleton of Brazoria County, at Velasco.

Personal.—Dr. John S. Turner, Ferrell, has been re-elected superintendent; Dr. James R. Nichols, Terrell, first assistant physician, and Dr. George F. Powell, Terrell, second assistant: Dr. W. M. Fullbright, Mount Vernon, has been elected third assistant, vice Dr. Scott Appleby, resigned, and Dr. C. M. Poff, Ellis County, fourth assistant, vice Dr. A. LaP. Thomas, resigned, all of the North Texas Hospital for the Insane, Terrell.——Dr. A. B. Gardner, Denison, was thrown out of his buggy, in a runaway, January 5, and fractured his clavicle.——Dr. Thomas J. Bennett, Austin, to avoid running over a boy, January 29, turned his automobile so suddenly that it overturned, wrecking the machine and severely bruising Dr. Bennett.

VERMONT.

Personal.—Dr. Summer E. Darling, Hardwick, has been elected a member of the state tuberculosis commission, vice Dr. Lorenzo W. Hubbard, Lyndon, resigned.

New State Board.—The State Board of Medical Registration created by act of the legislature last year, and consisting of Drs. W. Scott, Nay, Underhill and F. H. Godfrey, Chelsea, each for six years; Drs. Elroy B. Whitaker, Barre, and J. Sutcliffe Hill, Bellows Falls, each for four years, and Drs. Sam Sparhawk, Burlington, Henry Janes, Waterbury, and A. E. Parlin, Barton's Landing, each for two years, met January 10 and organized, electing Dr. Janes chairman, Dr. Nay secretary, and Dr. Whitaker treasurer.

Care of Eyes and Ears of School Children.—A bill has been passed by the legislature, to take effect July 1, providing for the better care of the health of pupils in public schools, which provides:

> The State Board of Health and the Superintendent of Education shall prepare suitable test cards, blanks, record books, etc., to be used in testing the sight and hearing of pupils in public schools and necessary instructions for their use; and the Superintendent of Education shall furnish the same, free of expense, to every school in the state. The superintendent, principal or teacher in every school, during September in each year, shall test the sight and hearing of all pupils under his charge and keep a record of such examinations according to the instructions furnished; and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or hearing or disease of eyes or ears, with a brief statement of such defect or disease; and shall make a written report of all such examinations to the Superintendent of Education as he may require.
>
> The State Auditor is directed to draw his order on the State Treasurer for such sums and at such times as the Superintendent of Education, with the approval of the State Board of Health, may require to carry out the provisions of this act. The total expense under this act shall not exceed $600 in any biennial term.

GENERAL.

Annual Conference of the Gulf States Quarantine Boards.—The annual conference of the Gulf States Quarantine Boards, for the regulation of quarantine matters, will be held in Mobile early in March.

The Samuel D. Gross Prize, of the Philadelphia Academy of Surgery for 1905, amounting to $1,200, has been awarded to Dr. James Homer Wright, Boston, for his essay, "The Biology of the Micro-organism of Actinomycosis."

Sanitarium for Lepers.—Senator Crane of Massachusetts introduced a bill in the senate, appropriating $250,000 for the establishment of an institution for the segregation of lepers, and prevent the spread of leprosy in the United States. The bill provides that the institution shall be located on some abandoned military reservation or other suitable site owned by the United States. The house committee on interstate commerce also considered two bills regarding the care of lepers. One provides for the establishment of a sanitarium in this country, to which may be sent all lepers in the United States, and another appropriates $150,000, to be used in Hawaii for the scientific study of the disease.

Panama Health Conditions.—In a cablegram to the War Department Gov. Davis of Panama gives the following summary of Isthmus conditions: In the families of the Americans employed on the Isthmus, only three cases of yellow fever have occurred, and one death. Of the employes hired on the Isthmus five have had yellow fever and one has died. Among the Americans not employed on the Isthmus, including those of the cruiser Boston, there have been nine cases of yellow fever and five deaths. The total number of cases originating on the Isthmus is thirty-two, of which nine have proved fatal. Six cases are now convalescing. Since the American occupation, the dispatch says, two cases of smallpox have been reported, but none has originated there. There is no typhoid or plague. Of the 4,000 employes only 3 per cent. are ill of any disease. Governor Davis says that the sanitation of Panama is progressing as efficiently as in any city of the United States.

CANADA.

The "Canadian Nurse" is a new publication shortly to be issued from Toronto.

The Peterboro, Ontario, Sanitarium Association was formed, February 9, to erect a sanitarium.

Personal.—Dr. A. E. Douglas, Hunter River, Prince Edward Island, has been chosen speaker of the Prince Edward Island legislature.——Dr. J. M. Lefevre, Vancouver, B.C., has returned to Canada from England.

Closer Relations Wanted at McGill.—The faculty of medicine of McGill University, in the interests of medical education in Montreal, has asked for full union with the university. The board of governors welcomed the proposal, and will arrange for a special meeting to consider details.

Toronto's Health During January.—The following cases of contagious diseases were reported in Toronto during January, 1905, as compared with January, 1904: Diphtheria, 187, 1904, 146; scarlet fever, 48, 1904, 37; typhoid fever, 14, 1904, 2. The births, marriages and deaths during January were 412, 293 and 333 respectively. The deaths under five years were 109, over 70, 54.

The Lepers of Canada.—Dr. Smith, medical superintendent of the Leper Hospital at Tracadie, N. B., has made his annual report to the federal parliament. There are now fifteen residents in the institution, ten males and five females, the youngest patient being ten years and the oldest 62 years. The use of Chaulmoogra oil was introduced two years ago with some success. Dr. Smith, after careful investigation, is convinced that leprosy is communicable through contagion.

Searching a Maternity Hospital.—An unheard of proceeding took place recently in Montreal, when a deputy high constable and a special constable obtained admission to the Montreal Maternity Hospital, and in spite of assurances on the part of physicians and nurses that the individual they sought was not there, wantonly searched every bed in the institution, both private and public, but without locating the person sought. The legal adviser of the hospital has been instructed to take proceedings against these two men.

To Establish British Columbia Board of Health.—An important conference in Vancouver, February 3, will probably result in the establishment of a properly constituted board of health for the province, as suggested by Dr. Brydone-Jack of Vancouver, the members of which will be medical men. At present the arrangements provide a health officer who consults with the provincial cabinet. It is announced that a thorough revision of the health regulations of the province may take place at the present meeting of the legislature.

Canadian Physicians and the British Medical Act.—General Laurie, member of the British house of commons, and formerly a member of the Canadian house of commons, is the author of a bill, which seeks to amend the British Medical Act of 1858. This measure has been before the English house of commons both in 1903 and 1904, in the latter year being supported by two representatives of the general medical council, Sir Walter Foster and Sir John Tuke. This amendment to the medical act seeks to remove those disabilities under which colonially trained physicians and surgeons lie, in that they are not permitted to serve as such in either the British army or navy. The matter is before the local medical societies of Canada, and resolutions are being forwarded to Lieutenant-General Laurie, so that when he next brings the measure before the house of commons he will have evidence to prove that Canadians desire such disabilities removed.

Ontario Board of Health.—At the regular quarterly meeting of the Ontario Board of Health in Toronto recently, the chairman, Dr. E. E. Kitchen of St. George, presented his annual report. The past year has been a satisfactory one, so far as the health of the province was concerned. There was a great difference in the deaths from scarlet fever over those of 1903, when 529 died from that disease alone. In 1904, the deaths from scarlet fever numbered 129. The deaths from diphtheria remained about the same, viz., 438, while the deaths from typhoid fever ran from 298 in 1903 to 397 in 1904. The deaths from tuberculosis also show an increase from 2,072 in 1903 to 2,168 in 1904. Dr. Amyot, the bacteriologist of the board, in presenting his report, stated that during the past year a number of patent medicines had been subjected to examination, in which a large amount of alcohol had been found. The secretary reported the number of deaths for 1904 as 25,415, a rate of 12.8 per 1,000.

FOREIGN.

Medal for Ramon y Cajal.—The Prussian Academy of Sciences has presented the Helmholtz medal this year to Ramon y Cajal of Madrid.

New Hospital in City of Mexico.—President Diaz opened the new General Hospital in the City of Mexico February 5. The construction of the hospital was commenced several years ago, and has cost many thousand dollars. It consists of many pavilions, because many of the hospitals in the city will be merged in this new hospital.

Hospital Administration at Berlin.—The new Virchow hospital at Berlin is to have a similar administrative body as the three other city hospitals there. This body consists of the chief of the surgical department, the chief of the internal medicine department, and an administrative director. This triple head is found the best working organization for the management of these institutions.

Cancer Research in Baden.—A number of physicians and surgeons gathered, January 21, at Heidelberg to organize a cancer research committee. The minister of the interior for Baden was chairman of the meeting and Prof. V. Czerny of Heidelberg was appointed chairman of the committee. A collective inquiry is to be undertaken throughout Baden, and a number of special questions are to be investigated.

Patent Medicine Laws in Venezuela.—It is reported that the Venezuelan government has adopted regulations whereby all medicines not duly authorized and approved by the board of physicians shall be excluded from the republic. Large quantities of patent medicines have been annually exported from the United States and from other countries to Venezuela, and need of some action to protect the people has been imperative.

New Hospital in Pekin.—A hospital has just been completed by the Presbyterian Board of Foreign Missions in Pekin, to replace the one destroyed by the Boxers several years ago. The good feeling that the native merchants have for the hospital was made evident by the fact that they were present in large numbers at the dedication exercises, at which the United States Minister, Mr. Conger, made one of the addresses. There were also present a number of Chinese officials.

Reform in Exhibitions at Medical and Surgical Congresses.—The German manufacturers of surgical appliances held a conference at Berlin recently, in which resolutions were adopted urging that those in charge of exhibitions connected with medical and surgical congresses should be more discriminating in accepting exhibits. The committee passing on the exhibits should contain at least one technical expert, and the exhibitions should be held less often—once in three years was considered often enough.

Vital Statistics in Italy.—The *Riforma Medica* states that the number of deaths in Italy from scarlet fever has dropped from 14,000 in 1887 to 1,500 in 1900; from 28,000 to less than 6,000 deaths from diphtheria; from 24,000 to about 9,000 from measles; from 28,000 to 15,000 from typhoid fever, and from 16,000 to 316 from smallpox. On the other hand, the mortality from pulmonary tuberculosis has increased from 32,000 to 40,000, and that from pneumonia has risen from 63,701 in 1887 to 76,101 in 1900.

Tuberculosis Winter Day-Resort.—A winter day-sanatorium for the treatment of tuberculosis has been opened at Eichkamp, in the Grünwald, the great pine forest near Berlin. The *British Medical Journal* states that eight such institutions are open to the Berlin working classes during the summer, but this is the first that has been fitted up for the reception of patients in winter. In acknowledgment of the unwearying efforts in behalf of the sanatorium movement of Frau Studt, wife of the Prussian minister for home affairs, this institution is to bear the name "Luise Studt Erholungstätte."

Dispensary Abuses at Berlin.—The Prussian budget for this year contains an appropriation of about $52,400 solely to make up the deficit at von Bergmann's surgical policlinic from the past year. The fame of the operator attracts crowds to the clinic, many of them probably able to pay for surgical tendance. The authorities are taking steps to prevent this overcrowding of the clinic, which is far beyond what is needed for teaching purposes. They are devising means to sift out those able to pay for surgical work, and to make the clinic more self-supporting.

Information Bureau at Berlin.—An office has been opened on the ground floor of the university building at Berlin, near the main entrance, to serve as an information bureau for scientific educational matters. Students and others can obtain all possible information in regard to courses, lectures, prices, etc., and every possible information will be afforded for the prosecution of special scientific research by foreigners. Questions sent by mail will be answered. The office is to be open mornings and evenings, except during vacations, when the morning hours only will be retained. The official name of the bureau is the "Akademische Auskunftsstelle." The similar information bureau at Paris has fully established its usefulness during the year or so it has been in operation. It has been previously described in these columns.

School Inspector Dismissed.—Dr. Goldfeld has been medical inspector of the schools at Schöneberg near Berlin, and last July he read an article before the Woman's Temperance Union of the town on the use of liquor by the school children. His article was based on personal investigations, and it was published in several temperance journals, and extracts from it were given in some of the daily papers at home and abroad. The citizens association (Bürgerverein) became enraged at this publicity, bringing scandal on the town, and the city authorities were petitioned to discharge Dr. Goldfeld. In collecting his statistics he was said to have overstepped his line of duty as medical school inspector. The mayor (Stadtmagistrat) summarily dismissed Dr. Goldfeld. The city council passed a unanimous resolution asking that the physician be reinstated. The mayor has refused to do this. Physicians throughout Germany are watching with great interest the outcome of this serious disagreement between the municipal authorities over the medical school inspector.

Fund for Original Research in Australia.—Mr. David Syme of Melbourne, has given $15,000 to found a prize for the encouragement of original research. The *Australasian Medical Gazette* states that the council of the University of Melbourne has decided on the regulations for awarding the prize, which is to consist of $500 and a medal. It will be open to competition in March, 1906, and similarly in each succeeding year. Any person, resident in Australia for not less than five years, is eligible, except professors in Australian universities or heads of scientific departments under any Australian government. The prize is to be awarded to the candidate who, in the opinion of the examiners, submits the best thesis based on original work in one or other of the following branches of science: Biology, chemistry, geology or natural philosophy. Other things being equal, preference will be given to original research connected with the material and industrial development of Australia. If a thesis submitted as the joint work of two or more authors be awarded the prize, it will be equally divided between such authors.

The Berne Serum Institute and the Typhoid Epidemic.—A letter from Switzerland in the *Deutsche med. Wochft.* of January 12, relates particulars in regard to the last typhoid epidemic at Berne which had a tendency to discredit the medical profession in the eyes of the laity. The serum institute there, which is supported by the state, has been in the habit of sending to the slaughter-house the animals for which it had no further use. It happened and the public learned that the meat of a horse which had been inoculated with typhoid bacilli was sold in the market two or three days before the outbreak of the epidemic. Notwithstanding that the incubation period and other conditions did not harmonize with the facts observed, the public at once ascribed the epidemic to this meat, and the city authorities endorsed this assumption to divert attention from the waterworks. The state has now forbidden the sale of animals from the serum institute, but the ghost of that typhoid-inoculated horse, butchered and eaten, is invoked now by the irregulars on every possible occasion. The writer adds that considerable harm from this incident might have been avoided if the local physicians had refrained from disparaging criticism and sought to shield their confrères in the institute instead of joining in the cry against them.

Scarcity of Antitoxin in Buenos Ayres.—Dr. J. Penna is director of the isolation hospital at Buenos Ayres, and he expresses concern at the way in which antidiphtheria serum is being heralded and pushed there as a remedy for tuberculosis. He comments on the great harm that results when any remedy is advertised as a cure for tuberculosis. The poor consumptives, seeing the display ads of the pretended cure, waste their last and precious means in buying the advertised medicine, instead of keeping the money to make them more comfortable and to buy them nourishing food. He exclaims: "Is it not the height of cruelty thus to delude these unfortunates!" The present craze for antidiphtheria serum as a remedy for tuberculosis has exhausted the supply, and this condemns children with diphtheria to do without this potent remedy in the one disease for which it has proved its efficacy. He mentions specific instances, among them that of the child of very wealthy parents brought to the isolation hospital the day before as no antitoxin was to be obtained in town at any price, and it was known that there was still a small supply in this otherwise dreaded hospital. He adds that diphtheria is endemic in Buenos Ayres, and epidemics of it are not infrequent. While consumptives are trying the antitoxin, children are liable to be dying for want of it.

LONDON LETTER.

The Health of London in 1903.

The annual report of Sir Shirely Murphy, the health officer of the London County Council, for 1903, has just been published, and is highly satisfactory. As usual, it furnishes interesting figures. It is estimated that another 31,000 persons were added to the population of London, making a total of 4,613,812. The marriage rate was 17.4 per 1,000, a slight decrease since 1902, but more than in 1891, when it was 17.0, the lowest on record. The birth rate still continues to decline, and was only 28.4, the lowest on record. The death rate was 15.2, also the lowest on record. This remarkably low rate was not peculiar to London, and was partly due to favorable meteorologic conditions. The corrected death rate (16.5) is lower than that of any of the large towns except Bristol, which was 14.7, and compares favorably with foreign capitals, which show the following rates: Paris, 17.9; New York, 18.2; Rome, 19.8, and St. Petersburg, 23.8. By life table methods the health officer calculates that during 1903, compared with the decennium 1891 to 1900, there was a saving of 18,742 lives, representing a gain of 665,333 years of "life capital." The infant mortality was 130, one of the lowest recorded, and also lower than that of any other large town in England, except Bristol. Turning to the chief causes of death the greatest diminution was in diseases of the respiratory, nervous, and circulatory systems, and in diphtheria and phthisis. There was an increase in the deaths due to cancer, suicide, and diseases of the urinary system. Cancer was given as the cause of 4,695 deaths; the annual average of the preceding 10 years being 3,964. The rate per 1,000 living rose to 1.02.

Munificent Gift to the Royal College of Surgeons.

Mrs. Macloghlin, the widow of a deceased physician, has, in accordance with the intention of her husband, proposed to give $50,000 to the Royal College of Surgeons for the purpose of endowing scholarships in his memory. They are intended to assist young students in need of financial aid to proceed with their studies. The council of the college have gratefully accepted the offer and agreed to administer the trust which has been arranged by the presidents and vice-presidents in consultation with Mrs. Macloghlin.

The Dangers of Flannelette.

From time to time public attention is attracted to the dangers of flannelette by inquests on the bodies of persons who have been burnt in consequence of flannelette garments catching fire. The popularity of this material, however, does not appear to have been affected nor any means taken to combat the danger. In an editorial on the subject the *Lancet* says that the days of inflammable flannelette should be numbered. The death-rate roll of children who have been injured by its ignition is appalling. It catches fire and burns as easily as alcohol. The following is an example: A boy, aged 2 years, was left to play in a room while his mother was absent. He was clad in a flannelette nightshirt. The mother heard screams and returned to find the boy in flames. He was terribly burned. and died within twenty-four hours. The British government has requested coroners to make returns of these cases. One coroner states that last year he held no less than seventy-three inquests on children burned to death, a large proportion of the deaths being due to flannelette igniting. The *Lancet* very pertinently asks: "Why wait for more evidence; are not the returns sufficient?"

Correspondence.

Card Indexing for Preserving Useful Medical Information.

Philadelphia, Feb. 11, 1905.

To the Editor:—Among the difficulties which beset the physician is to preserve useful information on various subjects in systematic shape for ready reference. The best method of doing this, coming steadily into vogue, is the card index. Much of useful data is offered in the form of advertisements, prospectuses, book notices, booklets, leaflets, circulars or cards of irregular size, making it utterly impossible to arrange them comfortably, hence to preserve them in such a fashion that they can be readily consulted.

I made the suggestion long ago to the drug manufacturers that if they desired, or expected, us to bear in our minds descriptions of their preparations, some of which contain much merit, they should make it practicable by giving us printed information, much or little, on cards of the ordinary size used in the card indexes This is the best way.

Thus a card index could be kept especially for "therapeutic suggestions," notes on treatment gleaned from divers sources Some of the drug houses have adopted this suggestion, and are sending out cards containing a list of their special preparations which can be conveniently filed. Two sides of a card provide much space.

If the proprietors of the various sanitaria designed for rest or recuperation or special treatment would adopt the card index system in addition to their regular circulars, these would be put on file alphabetically under the heading "Sanitaria" or health resort, coastwise or mountain hotels, springs, spas, etc, and would thus be promptly called to the mind of the physician when groping vaguely to find a suitable place to send a patient for rest, recreation or special treatment. The same card index plan would serve publishers of books.

The card index system for keeping notes of cases is recognized to be the best which has so far been offered, likewise for the keeping of accounts and other matters requiring useful record.

These are now offered in such cheap convenient forms that there should be no difficulty in securing and keeping, and the possibility is thus made easy to systematize references so that various other data could thus be preserved in such a fashion that no important facts need be far distant from our daily work.

A single drawer in an ordinary desk could easily contain two such card indexes, at least in the forward end, and thus an ordinary desk of three or four drawers could be well equipped with six or eight card indexes.

There is too much labor in taking a blank card and writing out the data, but if cards were supplied suitably printed and black lettered which could slip in the proper alphabetical order, there would follow a great economy of time and trouble and attention, and an immense saving of useful information

J. Madison Taylor, M D

Queries and Minor Notes.

Anonymous Communications will not be noticed Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed

VALUE OF ALBUMOSURIA AS A MEANS OF DIAGNOSIS

Trenton, N J., Jan 10, 1905

To the Editor:—What d[illegible]ndence is to be placed on albumosuria as a means of diagnostica[illegible]g concealed pus in either of the great cavities, or in deep seated m[illegible]scular structures of the body? Please give the most reliable and a[illegible]urate test, or tests, for this substance in the urine

C. H Gordon, M D

Answer.—By albumosuria [illegible] meant the appearance in the urine of those higher soluble cleav[illegible]e products of the albumins which, though they are not coagulable, [illegible] can be removed from solution by "out-salting"—the so called "[illegible]lbumoses" Physiologic chemists distinguish two classes of albu[illegible]oses, the primary albumoses (protalbumose and heteroalbumose) [illegible]hich stand very close to the albumins proper, and the secondary or deuteroalbumoses which stand close to the peptones. The albumoses which occur in the urine appear to be chiefly deuteroalbumoses. The condition so often described as "peptonuria" is in the majority of cases really "albumosuria" The amounts of albumose in the urine vary from 0 06 to 0 6 per cent, the larger amount occurring usually in cases of empyema or croupous pneumonia. Albumoses occur in the urine in various pathologic circumstances The so called "enterogenous albumosuria" is met with in cases of ulcer of the stomach, ulceration of the intestine and carcinoma of the stomach. The so-called "pyogenous albumosuria" is encountered in various suppurative processes—large abscesses, empyema, croupous pneumonia, mixed infections with tuberculosis, etc The so-called "endogenous albumosuria" is met with where body-tissues are breaking down, e g, in phosphorus poisoning, in acute yellow atrophy of the liver, in carcinoma of the liver, etc Beside, deuteroalbumoses have been demonstrated in the urine in many febrile processes, e g, pneumonia, scarlet fever, influenza, diphtheria, measles, typhoid fever and tuberculosis. In order to be *absolutely* sure of the presence or absence of albumoses in the urine, especially of small amounts, it is necessary to remove any albumin, globulin, mucin or nucleo albumin that may be present But, roughly, for clinical purposes, the following preliminary tests may be made: (1) Heating acidified urine Heat five or ten c c. of urine to which a trace of acetic acid has been added in a test tube to boiling and filter hot If albumoses are present the filtrate becomes turbid, and this turbidity will increase on the addition of ammonium sulphate When the filtrate is cooled, add some caustic potash and one drop of copper sulphate solution (5 per cent.); if albumoses are present the reddish violet biuret reaction is obtained. (2) Ferrocyanid of potassium and acetic acid test. To 10 c c. of urine add 5 drops acetic acid, should a precipitate form (urates, mucin, etc.), filter and add from one to three drops of a 5 per cent solution of ferrocyanid *of potassium. If a precipitate forms, which vanishes on heating* to reappear on cooling, the presence of albumoses is demonstrated A safer clinical test is that of A. Jolles (Pharmaceutisches Centralblatt, vol xxxvii, 1896, p 432). About 10 c.c. of urine are thoroughly shaken with a little animal charcoal, the filtrate mixed with two drops of solution of lead acetate and filtered again If albumin is present, it should be first removed by adding a few drops of a 10 per cent. solution of acetic acid, boiling, *neutralizing with 10 per cent NaOH, shaking with animal* charcoal, filtering, precipitating with lead acetate and filtering again The filtrate is now free from urobilin and almost colorless; apply the biuret reaction Of the strictly scientific methods that of F. Hofmeister is as good as any. To half a liter of urine are added 10 c c of a concentrated solution of sodium acetate, and then, drop by drop, a concentrated solution of ferric chlorid until the fluid remains permanently red If the urine is strongly acid, it is nearly neutralized, then boiled and, after cooling, filtered The filtrate must contain no iron or albumin To this filtrate is now added one-tenth of its volume of concentrated hydrochloric acid and then an acid solution of phosphotungstic acid (200 grams phosphotungstate of soda and 120 grams phosphate of soda dissolved in 1,000 c c. water and 100 c c concentrated sulphuric acid added) as long as it continues to throw down a precipitate Collect the precipitate on a filter, wash it with a 5 per cent solution of sulphuric acid, rub it up while still moist with solid barium hydrate, add a little water, warm *for a short* time until the original greenish color is changed to pure yellow and then filter the mixture. Free the filtrate from barium by means of dilute sulphuric acid, concentrate the filtrate, make the solution alkaline, and add cautiously, drop by drop, shaking constantly, some diluted 1 per cent. solution of copper sulphate, *if albumoses be present, the biuret-reaction is obtained,* first a rose color and later a violet tint. If the urine contains mucin it should be first removed by the addition of a small amount of lead acetate solution The so called "Bence Jones body" is *often spoken of* as an albumose, but more recent studies have proved that it is a native albumin The best description of it is to be found in the article by Magnus Levy (*Ztschr. f. physiol. Chem.*, vol xxx, 1900, p 290) It occurs in the urine in cases of *osteomalacia, often* in very large quantities, sometimes as much as 6 7 per cent. If acid urine containing the Bence-Jones body be heated with a little concentrated solution of common salt to 50 degrees C, the urine first turns milky and at 60 degrees gives a *sticky (not flocculent)* precipitate, which adheres to the walls of the test tube or swims on the surface of the fluid. On heating further, the turbidity and precipitate disappear and the solution becomes *clear;* on cooling the albumin body *again separates* out, and under the microscope appears in the form of spheres, occasionally in the form of crystals That it is really an albumin (and not an alb[illegible]) is shown by the facts (1) that when pure it can be [illegible] *coagulated: (2) that with* alcohol it can be denaturalized, [illegible] that strong acids or alkalies convert it into acid albumin [illegible] albuminate, and (4) that on pepsin-digestion it yields the ordinary albumoses and peptone (with the exception of heteroalbumose). The diagnostic value of albumosuria is very slight except in conjunction with other symptoms. In case there were a deep-seated abscess anywhere, the leucocytosis and the "choppy" temperature chart would be far more decisive symptoms than the albumosuria. The presence of the Bence-Jones albumin is believed to be highly characteristic of osteomalacia.

A BOOK OF PORTRAITS OF PHYSICIANS.

In THE JOURNAL, July 2, 1904, page 43, we mentioned the fact that a number of readers had asked us for information concerning a circular letter which had been sent to those who had registered at the Atlantic City session of the American Medical Association, asking for photographs and subscriptions for a book of portraits of those in attendance at the session. We suggested caution in dealing with the firm, and we closed with the following comment: "We also call attention to the printed order blank which is to be signed ordering the engraving made. No charge for this is named, and there is a possibility of the charge being any amount the company wishes." Here the matter rested until recently, when, coming across some of the circulars which had been laid away for future reference, we wondered whether or not the book had been issued, and wrote to the company asking about it. We received no reply, but during the next few days two subscribers wrote us for information concerning the company, having paid for the book and never having received it. The statement of one of the two carries out the prediction which we made in the last sentence of our remark, July 2, which we have quoted above. He received a bill of $11 for the making of the engraving, this was from a separate company, and the order blank which was signed by the subscriber gives the company a perfectly legal right to collect the charge. On receipt of these letters we wrote to our representative in New York City, and he has reported absolute failure to get into communication with either the portrait company or the engraving company. They did not reply to his letters and could not be definitely located. The portrait company had moved to a new address, but on calling at the new address our representative found no one connected with the firm and no equipment was apparent, but he was told that mail would be forwarded. The result of his search for the engraving company was similar. The person who stated that mail would be forwarded also stated that the book referred to had been issued, but, because certain men had objected to receiving it because some of the prominent men of the Association had not been included, another edition was expected soon with those men included. If any one has received the book we would appreciate being informed to that effect.

SUGGESTIVE THERAPEUTICS.

L. E. H. asks: "What are the best works on suggestion, its practice, etc.? Is there a place of good standing where this branch of study is taught?"

H. J. N. asks for the address of any school which gives instruction in hypnotic suggestion, with the cost and time needed for the course. "If no such school exists, please give names of authorized works on the subject."

ANSWER.—The question of suggestion and its practice has been exhaustively reviewed, as far as current medical literature is concerned, in the "Practical Medicine Series of Year Books, Chicago, Vol. VIII, 1903, and Vol. VIII, 1904. Works of value on the subject are: "Influence of the Mind on the Body in Health and Disease," Daniel Hack Tuke, M.D., 1884. "Suggestive Therapeutics," H. Bernheim, M.D., 1889. "Hypnotism and Suggestion," by Osgood Mason, M.D., 1901. "The Force of Mind or the Mental Factor in Medicine," A. T. Schoefield, 1902. "Psychotherapy in Practice of Medicine and Surgery," S. Leavitt, M.D., 1903, and a very excellent article by F. X. Dercum, M.D., in Vol. VIII of "System of Physiological Therapeutics." We know of no place in good standing where this line of study is specially taught, but more or less attention is usually given to it by the professors of therapeutics.

DEADBEAT LIST.

GALESBURG, ILL., Feb. 17, 1905.

To the Editor:—Any information or advice on the best method of procedure in forming a physicians' "delinquent list" will be gratefully received by the undersigned. Members of the Knox County Medical Society feel that there are many professional deadbeats who are imposing on them, and what we want is some plan which will be legal, not cumbersome, and which at the same time will protect us from the undeserving.

WILLIAM H. MALEY.

SCHOTT TREATMENT OF CHRONIC HEART DISEASE.

C. W. A. can obtain a copy of Dr. Bezly Thorne's book, "The Schott Methods of Treatment of Chronic Diseases of the Heart" (referred to by Dr. Anders in THE JOURNAL, Jan. 14, 1905), from Blakiston's Son & Co., Philadelphia. The price is $2.00.

Marriages.

AUGUSTUS KORNDOERFER, M.D., to Miss Mary M. Jones, both of Philadelphia, February 1.

WILLIAM E. DOWNING, M.D., Suison, Cal., to Miss Baugh of San Francisco, January 31.

RUSSELL C. MCNEILL, M.D., to Miss Anna Blair, both of Bellecenter, Ohio, January 25.

CLYDE J. SAYLOR, M.D., Womelsdorf, Pa., to Miss Rena A. Miller of Lebanon, Pa., January 31.

BOYD W. SCHAFFNER, M.D., Templeton, Pa., to Miss Grace Fearl of Johnstown, Pa., January 24.

CHARLES THADDEUS BELL, M.D., to Miss Esther Hampton Brock, both of New York City, January 30.

JOSEPH H. HATHAWAY, M.D., Rochester, N. Y., to Miss Ethel H. S. Baird of Woodstock, N. B., January 25.

R. MARVIN WINN, M.D., Sawrton, Mo., to Miss Rebecca Jones of Ashburn, Mo., at Louisiana, Mo., February 1.

BELLE F. ORR, M.D., Belton, Mo., and ROBERT A. WILLIAMS, M.D., Washington, Kan., at Kansas City, Mo., January 26.

Deaths.

Michael O'Hara, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, a member of the American Medical Association, died at his home in Philadelphia, January 31, aged 72. He served as assistant surgeon in the United States Navy, and as surgeon of the One Hundred and Fiftieth Pennsylvania Volunteer Infantry during the Civil War; was attending physician for many years to St. Mary's Hospital and the House of the Good Shepherd; from 1894 to 1898 he was director of St. Agnes' Hospital. He served as vice-president and librarian of the Philadelphia County Medical Society, and in 1876 he was a delegate to the International Medical Congress.

Freeman Dwight Case, M.D. Cleveland Medical College, Medical Department of Western Reserve College, 1870, a member of the American Medical Association, a member of the Ashtabula City council for several terms, and an organizer and member of the executive board of the Ashtabula General Hospital; a member of the Ashtabula County Medical Association, died at his home in Ashtabula, February 7, from septicemia following a fall in December last, in which he injured his knee and leg, aged 58.

T. H. Brenneman, M.D. University of Virginia Medical Department, Charlottesville, 1900, house surgeon of the Princess Anne Hotel, Virginia Beach, Va., a member of the local and state medical societies, died from septicemia following an operation wound, January 28, at Sarah Leigh Hospital, Norfolk, Va., after an illness of six weeks, aged 34.

Mary Alice Brownell, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885, a member of the American Medical Association; for nine years a physician in the State Custodial Asylum, Newark, N. Y., and afterward a practitioner in that village, died in the Rochester City Hospital, January 30, after an operation, aged 40.

George K. Rodebaugh, M.D. Jefferson Medical College, Philadelphia, 1901, house physician of the Park View Sanitarium, Columbus, Ohio, and for a time professor of practice of medicine in the Ohio Medical University, died at his home in Columbus, February 6, from nephritis, after an illness of more than a year, aged 27.

Frederick P. Tuxbury, M.D. Dartmouth Medical School, Hanover, N. H., 1899, died at his home in Denver, Colo., February 5, from nephritis, after an illness of ten days, aged 37. At a special meeting of the Denver City and County Medical Society, February 7, resolutions of regret and respect were adopted.

William H. Risk, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, president of the Summit (N. J.) Board of Health for two years, and a member of the county and state medical societies, died at his home in summit, February 7, after a long illness, aged 62.

Clarence W. DeLannoy, M.D. Jefferson Medical College, Philadelphia, 1881, chief surgeon of Telluride City Hospital, and health commissioner of the city, died at his home in Telluride, Colo., February 7, *from septicemia due to an operation* wound, after an illness of four months, aged 50.

Humphrey B. Anderson, M.D. Detroit (Mich.) College of Medicine, 1888, a member of the American Medical Association; a charter member and at the time of his death president of the Grand Traverse Medical Association, died at his home in Traverse City, Mich., February 8, aged 46.

Richard G. Lightle, M.D. Kentucky School of Medicine, Louisville, 1898, under indictment for defrauding life insurance companies of $21,000, burning a barn, and robbing a grave, died at the home of his mother in Searcy, Ark., February 7, from pneumonia.

William S. Wheelwright, M.D. Rush Medical College, Chicago, 1878, of Belleville, Wis., suffered a cerebral hemorrhage while making a professional call at New Glarus, and died four days later, February 5, aged about 60.

John H. McBrayer, M.D. Atlanta (Ga.) Medical College, 1882, died at his home in Shelby, N. C., January 30, from nephritis, after an illness of several years, aged about 60. He served as *postmaster of Shelby for two terms.*

Addison R. Tarkington, M.D. *Memphis (Tenn.) Hospital* Medical College, 1891, of Hot Springs, Ark., died at Benton, Ark., while on his way to San Antonio, Texas, for his health, from an affection of the throat.

Emmett A. Sprowls, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1898, formerly a practitioner of Claysville and West Alexander, Pa., died at his home in Elgin, Ill., February 1, aged 30.

Howard Edgar Bowman, M.D. State University of Iowa College of Medicine, Iowa City, 1904, died at his home in Hills, Iowa, February 1, from pneumonia, after an illness of ten days, aged 39.

Thomas Hill Ellis, M.D. Medical College of South Carolina, Charleston, 1894, died at his home in Hartsville, S. C., Dec. 26, 1904, from typhoid fever, after an illness of three weeks, aged 33.

James McGregor Stevenson, M.D. McGill University Medical Department, Montreal, 1856, died at his home in Denfield, Ont., January 31, from pneumonia, after an illness of two days, aged 67.

James David Hoyl, M.D. Harvard University Medical School, Boston, 1857, died at his home in Fort Valley, Ga., Dec. 26, 1904, from chronic bronchitis, after an illness of one year, aged 70.

Frank H. Sims, M.D. Atlanta (Ga.) Medical College, 1883, of Atlanta, Ga., died at the Elkin-Cooper Sanitarium in that city, February 5, from pneumonia, after an illness of a few days, aged 42.

Francis Norton Phelan, M.D. University of Wooster Medical Department, Cleveland, 1884, died at his home in Duluth, Minn., February 11, from pneumonia, after an illness of a few days.

Sidney M. Abbay, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1866, of Centerville, La., died at the sanitarium in Franklin, La., February 6, aged 67.

John B. McEwen, M.D. University of Nashville Medical Department, 1861, thrice treasurer of Lafayette County, Miss., died at his home in Oxford, February 6, from pneumonia.

E. M. Schelde, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1904, died at Blooming Prairie, Minn., from consumption, January 25, aged 36.

Albert O. Mundhenk, M.D. Medical College of Ohio, Cincinnati, 1903, of West Alexandria, Ohio, died in Denver, February 6, from tuberculosis, *after an illness of a year*, aged 30.

Allen F. Hagadorn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1875, died at his home in West Bay City, Mich., February 8, from apoplexy.

Edson H. Young, M.D. University of Vermont Medical Department, Burlington, 1884, *died at his home* in Buffalo, N. Y., February 5, after an illness of one week, aged 44.

Edward Dudley Arnold, M.D. Rush Medical College, Chicago, 1878, died at his home in Omaha, February 5, from pneumonia, after an illness of six days, aged 46.

Wooster Beach Preston, M.D. Cincinnati, 1867, died at his home in Dansville, N. Y., February 4, after an illness of more than a year, from Bright's disease, aged 60.

George W. Ebrite, M.D. Dartmouth Medical School, Hanover, N. H., 1868, died suddenly at his home near Gainesville, Mo., January 14, from angina pectoris, aged 64.

Jacob A. Gilder, M.D. New Orleans School of Medicine, 1868, a pioneer of Beaumont, Texas, died in that city, February 4, after an illness of six months, aged 67.

Moses M. Curtis, M.D., certificate, died at his home in Miles Station, Texas, January 10, from the rupture of an aneurism, *after an illness* of two weeks, aged 63.

Augusta Smith, M.D. Chicago, 1883, was struck by an electric car near her home in St. Louis, February 4, and died a few hours later from her injuries, aged 73.

James Madison, M.D. State Board of Health, 1878, a pioneer of Clark County, Ill., died at his home near Marshall, February 2, *from senile debility*, aged 83.

James A. Freer, M.D. New York, 1885, of Washington, D. C., was found dead in a country inn near that city, February 5, from morphin poisoning, aged 46.

Alfred Lindsay Shapleigh, M.D. Harvard University Medical School, Boston, 1894, a medical missionary in China, died in Shanghai, February 3, aged 35.

Jacob L. Gebhart, M.D. *University of Heidelberg*, Germany, died at his home in Hot Springs, Ark., February 3, from senile debility, aged more than 80.

Joseph N. Hetzler, M.D. Medical College of Ohio, Cincinnati, 1875, died *at his home in Celina, Ohio, from cerebral* hemorrhage, February 6, aged 76.

Albert G. Anthony, M.D. Ohio, 1880, died from the effects of carbolic acid taken with suicidal intent, at a hotel in Syracuse, N. Y., February 1, aged 45.

John Schmidt, M.D. *Marion Sims College of Medicine*, St. Louis, 1898, died at his home in St. Louis, February 6, after a lingering illness, aged 29.

George W. Yokum, M.D. Jefferson Medical College, Philadelphia, 1854, died at his home in Beverly, W. Va., January 30, after a protracted illness.

Don Quincy Sims, M.D. 1850, of Joshua, Texas, died at Morgan, Texas, December 17, from brain disease, after an illness of three months, aged 78.

Thomas J. Robinson, M.D. University of Louisville (Ky.) Medical Department, 1869, died at his home in Marianna, Ark., January 15, aged 63.

Samuel E. Thayer, M.D. University of Buffalo Medical Department, 1869, died at his home in Hamilton, Mass., February 5, aged 62.

Baxter Haynes, M.D. St. *Louis College of Physicians* and Surgeons, 1880, died at his home, Harricane, Ill., January 27, aged 77.

Patrick H. Kelly, M.D. Medical College of Ohio, Cincinnati, *1850, died at his home in Waterford, Ohio, February 6, aged 80.*

Samuel R. Woods, M.D. St. *Louis Medical College*, 1867, died at his home in Clearwater, Fla., January 23, aged 75.

William D. Babcock, M.D. New York, 1885, of East Hampton, Conn., died in Florida, February 1, aged 57.

Benjamin F. Cory, M.D. Cincinnati, died at his home in *Takoma Park, D. C., January 27, aged 85.*

Royal R. Lacey, M.D. Cincinnati, 1878, died at his home in Carbondale, Ill., February 2, aged 68.

Book Notices.

TEXT-BOOK OF INSANITY BASED ON CLINICAL OBSERVATIONS, for Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis. Pp. xvi—638. Price, $4.00 net. Philadelphia: F. A. Davis Company. 1904.

Those who have had the rare pleasure of listening to Krafft-Ebing's remarkably clear exposition of psychiatric types and later have drawn from the clinical riches of his text-book will rejoice that readers of English are to be introduced to this great descriptive writer. For many years his work has been a standard text-book and nowhere are to be found better word pictures of the various symptom-groups of insanity. It is essentially clinical. Even the 230 pages on the "General Pathology and Therapy of Insanity" are practical, the matter evidently being the product of experience with insane people. Krafft-Ebing has shown neither the analytic nor synthetic power of Kraepelin, but no writer has known better how to put the reader in the place of one who visits an asylum, sees the faces of the patients, observes their acts, hears their talk and then follows their course day by day. Indeed, there is very little of what an asylum physician may see and learn in years of active service that is omitted from this text-book. The amount of information contained in the six hundred and twenty-odd pages is astonishing. Notwithstanding the completeness of the work, it can not to-day fill the demands of the student of psychiatry. Live and serious questions as to the nature of certain forms of insanity have arisen; questions involving diagnosis, prognosis and treatment: questions not broached in the work before us. Notably the practical issues in connection with dementia præcox, so-called manic-depressive insanity and paranoia, not to mention Korssakow's psychosis, are entirely ignored. This being the case, it is to be regretted that the translator did not also assume the prerogative of editor and add some discussion of new matter brought into the psychiatric field by observers and writers other than the author. The translator has done his work well and has earned the gratitude of many.

Normal Histology and Microscopical Anatomy. By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York City. With 462 Illustrations in the Text, Many in Colors. Cloth. Pp. 738. Price, $5.00. New York and London: D. Appleton & Co. 1905.

This book appears to cover in a satisfactory manner the field it occupies. Perhaps more space, relatively speaking, than usual has been devoted to special organ systems, especially the nervous system. The illustrations are in general creditable. Figures 165 and 361 should be replaced by other and better ones in the next edition. There is a very limited chapter on technic which might as well have been omitted in view of the various authoritative books on histologic technic now obtainable and copies of some of which surely are present in every well-equipped laboratory. It is somewhat startling to read in the preface that the field of normal histology is inadequately covered as regards text-books. This becomes still more puzzling when we find that in his list of references the author cites nearly a dozen works that have been issued since 1900 and several of which are recognized as standard text-books. Dearth of books dealing with normal microscopic anatomy and histology is, therefore, hardly an adequate reason for a new book on this subject. In this case, however, it seems as if the author had a real interest in his subject and that his book, which has been prepared with care, will be found useful.

Bacteriology and the Public Health. By George Newman, M.D., F.R.S.E., D.P.H., Formerly Demonstrator of Bacteriology in King's College, London. Illustrated. Third Edition. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

Several new chapters have been added to this book, and the whole revised and enlarged. The book aims to give a simple general statement of our present knowledge of microbiology in relation to public health for the special benefit of the general student of hygiene and of the medical officer of health. Inasmuch as malaria and other diseases caused by microbes, other than bacteria, in the usual sense of the word, are considered, objection might be made to the present title. Microbiology would seem to fit the case better. Take it all in all, the book is well written and has a distinct field of usefulness. We think that the account given of yellow fever is unsatisfactory because of the relatively large amount of space given to Sanarelli's bacillus and the wholly inadequate statement of the significance and the results of the work of Reed and his colleagues. The citation of streptococcus and pneumococcus infections as good examples of the value of antitoxic treatment is, of course, not in accord with our present state of knowledge. Lobar or croupous pneumonia is said to be associated with two organisms, "Fränkel's diplococcus and Friedländer's pneumobacillus," a statement that one would least expect to meet in this place. The "ray fungus" is given the absurd name of "streptothrix actinomyces." The bacteriology of sewage, soil and feed seems to be discussed very satisfactorily.

Miscellany.

WINNIPEG TYPHOID EPIDEMIC.

Expert's Report to the Municipal Authorities on the Causes and His Recommendations for Future Prophylaxis.

An excessive prevalence of typhoid fever is no new thing in Winnipeg. Table 1 shows the death rates calculated from the cases and the deaths reported to the city board of health and from the deaths reported to the Department of Agriculture through the office of the city clerk.

Table 1.—Cases and Death Rates from Typhoid Fever in Winnipeg.

Year.	Est. Pop'n.	Cases.	Death Rate per 10,000 Pop'n. Bd. of Health.	Death Rate per 10,000 Pop'n. Dep't of Agricult.
1900......	42,500	582	7.99	11.75
1901......	44,800	319	8.01	11.83
1902......	48,400	356	5.99	9.50
1903......	56,700	409	8.11	8.48
1904......	67,300	1,276	10.74	21.85

Whichever mortality record be accepted as more nearly correct, it is apparent that the death rate from typhoid fever in Winnipeg has for some years been in marked excess, and in 1904 in alarming excess, as compared with that in the majority of other American and European cities. This is true, even if the population estimate be increased 20 per cent. in the years named and the death rate correspondingly lowered. To facilitate comparison, recent average death rates for a number of other cities are given in Table 2.

Table 2.—Typhoid Death Rate of Various Cities.

City.	Death-rate per 10,000 Pop'n.	City.	Death-rate per 10,000 Pop'n.
Lawrence	2.0	Louisville	6.0
Albany	5.1	Milwaukee	1.8
Baltimore	3.5	Minneapolis	3.9
Boston	3.0	New York	1.9
Buffalo	2.7	Omaha	2.8
Chicago	2.8	Philadelphia	5.4
Cincinnati	3.5	Pittsburg	10.6
Cleveland	4.0	Providence	2.4
Columbus	3.1	St. Louis	2.3
Denver	3.8	St. Paul	2.3
Fall River	1.5	San Francisco	3.7
Detroit	1.9	Washington	8.8
Indianapolis	3.8	Berlin, Germany	0.5
Jersey City	2.4	London, England	1.4
Kansas City	3.1	Hamburg, Germany	0.9
Los Angeles	4.3	Rotterdam, Holland	0.2

A critical examination of the available data in Winnipeg showed an interesting and significant distribution of the cases both in time and space. It soon became evident that several factors had conspired to produce the abnormally large amount of typhoid fever that occurred in Winnipeg in 1904. For the sake of clearness these may be considered under separate heads.

I. CONTACT INFECTION.

A very serious feature of the situation in Winnipeg is the occurrence of a large number of cases in house groups. In perhaps the majority of dwellings in which typhoid fever appeared, the first case was followed more or less promptly by other cases in the same household. In nearly all instances in which more than one case occurred in a house the dates of infection are such as to point unmistakably to a more or less direct transfer of the specific disease germ from the individuals first attacked to other members of the household.

The reason for this is that the typhoid bacillus may multiply in the body of the patient in immense numbers. Both the discharges from the bowels and from the bladder may contain countless millions of living microbes, and a very small amount of infectious material, therefore, is capable of infecting many persons. One element of peculiar danger is the fact that typhoid germs occasionally persist in the urine of typhoid convalescents for weeks and even months after complete recovery has taken place. Special vigilance is necessary to combat the peril from this source.

Abundant evidence has been secured that in Winnipeg, as in

[Editor's Note.—The typhoid epidemic in Winnipeg, Manitoba, has been mentioned from time to time in our news columns. The municipal authorities of Winnipeg engaged Edwin O. Jordan, associate professor of bacteriology in the University of Chicago, to make an investigation of the situation. This article is an abstract of his official report, presented to the Winnipeg City Council, Feb 8, 1905.]

many other American cities, the household precautions against the spread of infection from case to case have not been as rigorous as is desirable. In some instances food has been prepared for the members of a family by the individual who was at the same time performing some of the duties of nurse to a typhoid fever patient. Members of a patient's family and even outside visitors have in some instances associated more or less freely with a patient or convalescent, and in more than one household disinfection of the excreta and of the bedding and other articles used by the patient has not been carried out with the rigor necessary to stamp out all trace of infection.

[As an illustration of the nature of the precautions considered essential by modern authorities, Mr. Jordan quoted the regulations of the German government concerning the supervision of typhoid fever cases. We omit this from the abstract.—Ed.]

II. LACK OF SEWER CONNECTIONS.

The large number of outside privies in Winnipeg is undoubtedly favorable to the maintenance of typhoid fever, and in the past has been largely responsible for the prevalence of the disease in the warmer months of the year. Winnipeg contains approximately 12,000 buildings, and only 5,600 sewer connections. Some of these privies must occasionally be used by persons suffering from mild or unrecognized cases of typhoid fever or by convalescents. Under the conditions that prevail in more than one section of the city the transfer of infectious material from these outhouses to the dwellings and to the persons of neighbors is not only possible, but in greater or less degree certain to occur. Fecal material from some of these privies was seen scattered over the whole width of the alley. Children play in the alleys on which these privies abut, and may readily soil their shoes, clothing and even fingers with infectious material. Dogs and other animals may convey infection into houses in various ways.

Perhaps the most mischievous carrier of infection under the circumstances described is the common house-fly. It has been repeatedly shown that this pestiferous insect is a common purveyor of infection. The house-fly is bred in large numbers in horse manure, and the intermingling of stables and privy vaults seen in some of the back lanes of Winnipeg affords peculiarly favorable conditions for the spread of infection by this means.

The past history of typhoid fever in Winnipeg bears out this plain inference from the sanitarry conditions. During the five years for which record has been obtained, typhoid fever has prevailed most extensively in August, September and October, the very months when infection in the ways indicated would be most likely to take place. The local distribution of cases is wholly in accord with the assumption of this mode of infection.

III. MILK INFECTION.

A house-to-house canvass[1] showed that many more cases developed in families supplied with milk from some milkmen than from others. It must not be forgotten that in every locality where typhoid fever is prevalent and where opportunities for infection are so numerous as they have been in the city of Winnipeg in the last six months, infection of some one or more of the milk supplies is not only probable, but almost certain to occur. This is one of the recognized evils that follow in the wake of a great accumulation of infectious material in a community. Danger from this source can be much diminished, however, by frequent inquiry into the health of those engaged in producing and distributing the milk, and especially by preventing the infection of the milk or of the milk vessels en route.

IV. WATER SUPPLY.

The main water supply of Winnipeg, derived from an artesian well, has been frequently tested in the past by competent analysts, and with uniformly favorable results. There is nothing in the sources of this water, in the softening treatment to which it is subjected, or in its epidemiologic relations, to cast suspicion on its wholesomeness. The water of the Assiniboine River, however, which has been used at times as an accessory source of supply, comes from a watershed exposed to pollution at many points, and it has been generally recognized that the use of raw Assiniboine water was to be avoided as much as possible. On two occasions, in 1904, raw Assiniboine water was turned into the city mains to increase the inadequate supply and to meet the emergency caused by large fires. Examination of a table of the reported cases of typhoid fever tabulated by weekly and fortnightlty periods, reveals several very interesting facts. There is noted first a rapid rise in the amount of typhoid fever, reaching its maximum in September, at the time when fly infection might reasonably be supposed to manifest its greatest effect. A decline in the number of cases reported then sets in precisely as was the case in four preceding years. This decline is abruptly checked in the fortnight October 24 to November 6, when the number of cases reported rises to 110 as compared with 83 in the preceding fortnight. In the succeeding bi-weekly periods the decline again continues with considerable regularity until in the period December 19 to January 1 a minimum of 45 cases is reached. Instead of continuing to decline, however, a striking increase of almost explosive character is shown in the next fortnight when the cases reported registered 120. It is a highly suspicious circumstance that the dates on which the Assiniboine water was pumped into the city mains, namely, October 10 and December 28, correspond with the dates of probable infection of the cases reported in the two periods referred to.

Supposing, however, that infected water played no part in the production of typhoid fever on the occasions mentioned, it must be strongly emphasized that even the occasional use of the raw Assiniboine water is an unwholesome and dangerous practice. Bacterial examinations made by the writer of the river water collected at the intake of the pumping-station showed the presence of fecal bacteria in the water in considerable numbers. On days when the Assiniboine water was being pumped, water drawn from the taps in the southern portion of the city showed likewise the presence of fecal bacteria. The northern portions which, from their location, were presumably receiving chiefly or wholly water from the artesian well, did not contain any objectionable bacteria in the tap water at the time the examination was made.

OTHER CONSIDERATIONS.

The condition of the city sewers in Winnipeg has been such as to give rise to the conjecture that the emanations from the manholes or from defective plumbing might account in some way for the prevalence of typhoid fever. It is difficult, however, to find support for this view in the known facts of typhoid epidemiology; and the ascertained facts regarding the distribution of typhoid fever in Winnipeg lend no countenance to the view that sewer air has been a direct means of transmission in the present outbreak.

At the same time, it must be remembered that the highly offensive stenches arising from decomposing matter in sewers have often been shown to exercise a depressing and weakening influence on human vitality. It is in some such way, if at all, that we must conceive the peculiar condition of the Winnipeg sewerage system to have influenced the spread and maintenance of typhoid fever.

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[1] Incidentally, this canvass showed that in this particular district only 70 out of 89 cases had been reported to the Board of Health, or about 78 per cent. of the number actually existing. If the same ratio was maintained throughout the city, several hundred cases of typhoid fever actually occurred of which the Board of Health received no record. Furthermore, it must be noted that the dates on which the cases are reported to the Health Office are in some instances not to be taken as the dates of inception of the disease. Twenty-five cases that had been reported to the Board of Health but regarding which more accurate information was obtained by canvass, were selected at random for comparison. Seven of these had been reported to the Board of Health within three days after the beginning of the disease, so far as the latter could be fixed by the date of taking to bed and summoning a physician; eight more were reported within ten days, and the remaining ten cases were not reported to the Board of Health until 10 to 15 days had elapsed. From these facts it can be readily seen how greatly the work of local officials must be hampered by the lack of precise information concerning the occurrence and date of onset of the disease. Prompt action on the part of the health authorities would be greatly aided by a further systematization in the methods of reporting and supervising cases of typhoid fever. In any attempt to combat further epidemic spread, the advantages of a full knowledge concerning the occurrence and distribution of all cases is so obvious as hardly to need comment.

No reason was found for attaching suspicion to the ice supply.

In view of the facts that have been instanced regarding the frequency of contact infection, it is desirable to emphasize once more the multifarious ways in which infection can occur when once typhoid fever has become firmly established in a community. During the whole course of the illness and often far into convalescence immense numbers of typhoid bacilli leave the body of the patient. The dangers to which the whole community is exposed from unrecognized or unsupervised cases of typhoid fever are therefore countless. Almost any raw foodstuff may be the vehicle for infection. Milk, butter, raw vegetables, fruit, bread, if handled by typhoid convalescents or peddled by persons dwelling in infected houses, may become a means of spreading the disease. Under some conditions it is apparent that laundries may aid in dissemination of the infection. In short, it is unnecessary to enumerate all the possible ways in which infection can be transmitted, and typhoid fever become fastened to the shoulders of a community as an endemic disease. Experience and common sense will serve to point the way to these dangers and to discover means for their avoidance Thorough disinfection is the key to the situation.

SPECIFIC RECOMMENDATIONS.

1. To deal with the prevention of contact infection the health officer should be in the possession of ample power and financial resources for isolating, disinfecting and carrying out such other measures as are in his judgment necessary to prevent spread of the disease from the case under supervision. Every fresh case of typhoid fever is a new focus of infection, and unless stringently controlled, is a more or less direct menace to the whole city. Prompt notification of new cases is imperative.

2. In those parts of the city where sewers exist, connection of all houses with the sewers should be enforced and that as speedily as practicable. Until such time as this is accomplished, temporary measures, such as thorough disinfection with milk of lime, should be promptly applied. Of foremost importance is the abolition of the open outhouses It is evident that it is not consonant with the public safety that any person ill with typhoid fever should be allowed to remain in a house without sewer connection.

3 Milk-measuring vessels or general receptacles of any sort should not be carried into or removed from houses in which typhoid fever is present The daily delivery of milk must be made with suitable precautions Inspection of the sources and routes of milk supply can not be too vigilant at times when typhoid fever is known to prevail.

4 The existence of private wells renders efficient control of the city's drinking water more difficult than if a single source of water supply existed. The use of such wells should be restricted and their number reduced as rapidly as possible. It should be made physically impossible for the employes of the Canadian Pacific Railway Company and for those of the City Railway Company to draw water for drinking purposes from taps connected directly with the Assiniboine or Red River. Experience under similar conditions in many cities has shown the futility of merely providing hortatory placards. In this connection it may be once more pointed out that a single case of typhoid fever due to drinking impure water may become a center from which scores or even hundreds of other cases will arise.

Water from the Assiniboine River should be used as little as possible.

5 I would recommend finally the employment of a man who has had experience in the management of epidemics to take charge of the whole situation, and to institute and enforce the necessary measures for stamping out all traces of infection.

In conclusion, I wish to acknowledge my deep obligation for the effective assistance rendered during the investigation by the various municipal departments and officials who have placed at my disposal all available data, and to express especially my indebtedness to Dr. Gordon Bell, who has afforded me valuable laboratory facilities and has greatly aided me in various ways.

The Downfall of Therapeutics.—The following editorial from *American Medicine* shows clearly the present status of therapeutics and materia medica: "Before the development of the natural sciences placed medicine as an art among the applied sciences, therapeutics was the most important branch of medical study and practice. Among the medical sects the same observation holds true at the present time. During the last half century medical progress, however, the pursuit of exact medical knowledge, has led students chiefly into surgery, diagnosis, pathology and bacteriology. Definite knowledge of the intimate reactions of the metabolic processes of our bodies with foreign agents introduced as drugs is just coming into sight with the growth of the new science of pharmacology, and so necessarily therapeutics at present lags behind. All of which is new to no one who sees, and is introduced simply to draw attention to an unfortunate practical result of this state of affairs. For some years progress in materia medica and therapeutics has seemed almost to lie in the hands of lay manufacturers. With their new compounds and their disguised old ones, the drug makers have kept the materia medica expanding at an alarming rate. This condition is by no means wholly to be deplored, as the pharmaceutists have contributed much to the comfort of physician and patient. However, the tremendous preponderance of commercialism in recent therapeutic progress has brought with it some ill conditions Money-making attracts the unscrupulous, and the medical profession has difficulty in separating the wheat from the tares. Any good new laboratory product of therapeutic value is immediately imitated or attacked. There develops intense feeling between foreign and domestic manufacturers, and all the while the poor doctor, as the bone of contention, is overwhelmed with 'literature' and 'medical journals' (*sic*) and agents. Contradictions multiply until mercury and quinin appear to be about the only agents of whose qualities the physician may feel reasonably sure! The *prize*—the patronage of the profession—being of great commercial value, many subterfuges are employed by some to enable them to share in it Official positions in medical bodies at times are sought, and at other times are appropriated by not too nice strategy. Medical journals are subsidized and new ones are published. A number of makers pay a regular stipend secretly to complaisant doctors here and there over the country, who, in return, are expected to read 'useful' papers and at every possible turn to uphold the wares of the benefactor. Thus it comes that therapeutics has reached its present low estate. Scientific physicians give their time to diagnosis and pathology, and limit themselves to simplest measures of treatment. Others make a diagnosis and then choose the remedy that the maker says is best for that condition. Many among us who love the study of means to alleviate suffering have endeavored faithfully to recreate professional interest in pure therapeutics, but the combat with intrenched wealth and monopoly is an unequal one in the face of general professional lethargy. But hope is not to be abandoned."

Sudden whitening of the hair is well authenticated, being known for centuries as recorded poetically by Byron in the "Prisoner of Chillon," says the *Med. Times*. Darwin tells of a man who, while being led to execution, became gray before the eyes of the spectators. Laycock records the case of a Sepoy who became gray in a half-hour. Cantrell reported an interesting case in his clinic, a man of 45, whose moustache became white in twenty-four hours and in ten days his whole head of hair changed its color to white. Brown-Séquard watched his own hair change; it occurred so rapidly that he could note the change daily. Henry of Navarre had his hair change in twenty-four hours.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

District of Columbia January Report.—Dr. W. C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the examination held at Washington, Jan. 12, 1905. The number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 14, of whom 12 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Columbian University	(1904)	82.06, 83.31, 79
Georgetown University	(1904)	85.03
Howard University	(1903) 75.18(1904)	79.68*, 81.31*
Johns Hopkins University	(1902)	86, 88.09
University of Pennsylvania	(1883)	92.18
University of Virginia	(1901)	96.18
Woman's Med. Coll. of Pennsylvania	(1903)	95.15
FAILED.		
Georgetown University	(1904)	74.18
Howard University	(1904)	60.08

*Second examination.

Iowa Report for 1904.—Dr. J. F. Kennedy, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Des Moines during 1904. At each examination the number of subjects examined in was 8; total number of questions asked, 80, and percentage required to pass, 75. At the examination held in April, 80 persons were examined, of whom 69 passed and 11 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College, St. Louis	(1903)	75
College of P. and S., Baltimore	(1902)	87
College of P. and S., New York City	(1891)	87
Ensworth Medical College, St. Joseph, Mo	(1904)	76, 77, 81
Creighton Medical College, Omaha, Neb	(1901)	77
College of P. and S., Keokuk, (1904) the grade of 75 was reached by one, 76 by two, 77 by five, 78 by one, 79 by three, 80 by three, 81 by two, 82 by three, 83 by three, 84 by five, 85 by two, 86 by three and 87 by four.		
McGill University, Montreal, Canada	(1903)	88
Rush Medical College, Chicago, (1895) 90, (1901) 87, (1903) 85, 86, (1904) 85.		
Coll. of P. and S., St. Louis, (1902) 75, (1903) 78,	(1904)	88.89
Sioux City College of Medicine, (1904) the grade of 81 was reached by one, 82 by one, 84 by two, 85 by one, 86 by one, 87 by three, 88 by one, 89 by one and 90 by one.		
University of Iowa	(1897)	81
University Medical College, Kansas City, Mo	(1903)	76
University of Michigan	(1894)	87
FAILED.		
Homeopathic Medical College, St. Louis	(1904)	74
St. Louis College of P. and S.	(1904)	63
Keokuk Medical College	(1903) 69, (1904)	70, 70, 73, 74
Eclectic Medical Institute, Cincinnati	(1904)	65†
University of Nebraska	(1903)	68
St. Louis College of P. and S.	(1902)	62*
University Medical College, Kansas City	(1902)	64

*Second examination. †Fourth examination.

At the examination held in June 136 applicants were examined, of whom 120 passed and 16 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Baltimore Medical College	(1900)	87
Barnes Medical College, St. Louis	(1904) 75, 80,	80
Bennett Eclectic Coll. of Med. and Surg.	(1904)	93
Denver and Gross Medical College, Denver	(1903)	89
Iowa College of P. and S., Des Moines	(1904)	82
Drake University, Des Moines, (1904) the grade of 76 was reached by two, 77 by one, 80 by one, 83 by two, 84 by two, 85 by one, 87 by one and 88 by one.		
Hahnemann Medical College, Chicago	(1904) 76, 79,	86
Hering Medical College, Chicago	(1904)	77
Jefferson Medical College	(1904) 82, 84, 85, 86, 87,	88
John A. Creighton Medical College, Omaha	(1904)	80, 81
Marion Sims-Beaumont, St. Louis	(1904)	76
Medico-Chirurgical College, Philadelphia	(1904)	86
Northwestern University, (1904) the grade of 78 was reached by one, 82 by two, 83 by one, 84 by one, 85 by three, 87 by two, 88 by two, 89 by one, 90 by one and 92 by one.		
Rush Medical College, Chicago	(1904)	81
St. Louis College of P. and S.	(1901) 75, (1904)	77
University of Bellevue, New York City	(1904)	90
College of P. and S., Chicago, (1903) the grade of 75 was reached by one, (1904) 78 by one, 79 by one, 80 by one, 83 by two, 84 by one, 85 by one, 88 by one and 89 by one.		
University of Iowa, (1904) the grade of 76 was reached by one, 77 by two, 79 by three, 80 by four, 81 by five, 82 by five, 83 by four, 84 by ten, 85 by three, 86 by four, 87 by six, 88 by three, 89 by four and 90 by one.		
University of Minnesota	(1901) 79, (1904)	82, 85
University of Nebraska	(1904)	80
FAILED.		
Keokuk Medical College	(1904)	71*
Homeopathic Medical College, St. Louis	(1904)	73*
St. Louis College of P. and S.	(1904)	59*
Barnes Medical College, St. Louis	(1901)	62, 71
Marion Sims Medical College, St. Louis	(1904)	63, 72
University of Iowa	(1904)	71
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1883) 44, (1903)	69††
American Medical College, St. Louis	(1903)	43
Chicago Homeopathic Medical College	(1904)	72
University of Iowa	(1899)	72
Meharry Medical College, Nashville, Tenn.	(1895)	68†
University of Iowa	(1904)	74

*Second examination. †Fourth examination. ††Fifth examination.

At the examination held in September 37 applicants were examined, of whom 25 passed and 12 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
American Medical Missionary College, Chicago	(1904)	81
Barnes Medical College, St. Louis	(1904)	75
Dartmouth Medical College, Hanover, N. H.	(1903)	88
Drake University, Des Moines	(1904)	90
Hahnemann Medical College, Chicago	(1904)	90
Illinois Medical College, Chicago	(1904)	81, 86
Jefferson Med. College, Philadelphia, (1896) 90,	(1904)	82, 85, 86
Creighton Medical College	(1904)	89
National Medical University, Chicago	(1904)	77
Northwestern University	(1904)	83, 90
Rush Med. Coll., (1895) 91, (1899) 91, (1903) 83,	(1904)	84, 86
College of P. and S., Chicago	(1899)	91
University of Iowa	(1904)	82
University of Michigan	(1904)	85
University of Nebraska	(1903)	76
University of Pennsylvania, Philadelphia	(1903)	81
Washington University, St. Louis	(1903)	77
FAILED.		
College of P. and S., Chicago	(1899)	66
Pulte Medical College	(1888)	64
Drake University, Des Moines	(1903)	66**
Chicago Homeopathic Medical College	(1904)	72*
Eclectic Medical Institute, Cincinnati	(1883)	57*
Barnes Medical College, St. Louis	(1901)	60*
University of Iowa	(1904)	71*
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1903)	70††
Keokuk Medical College	(1904)	71*
Barnes Medical College, St. Louis	(1904)	70*
Jenner Medical College, Chicago	(1902)	72

*Second examination. **Third examination. ††Sixth examination.

At the December examination 17 applicants were examined, of whom 12 passed and 5 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Rush Medical College	(1904)	86
Illinois Medical College, Chicago	(1905)	85
Northwestern University	(1904)	84
University of Nebraska	(1904)	77
College of P. and S., Chicago	(1904)	82
National Medical University, Chicago	(1903)	75
University of Michigan	(1880)	79
Jefferson Medical College	(1904)	81, 86, 87
College of P. and S., Keokuk	(1903)	77
Toronto School of Medicine, Canada	(1904)	88
FAILED.		
Eclectic Medical Institute, Cincinnati	(1883)	61**
Chicago Homeopathic Medical College	(1904)	71*
University Medical College, Kansas City	(1902)	69*
Barnes Medical College, St. Louis	(1904)	65*
Jenner Medical College, Chicago	(1902)	72*

*Second examination. **Third examination.

The general average attained by all graduates of the College of P. and S., Keokuk, who passed during the year, was 81.5; of Rush Medical College, 82.9; of Sioux City College of Medicine, 86.9; of Drake University, 82.9; of Jefferson Medical College, 85.3; of Northwestern University, 85.6; of College of P. and S., Chicago, 83; of the University of Iowa, 83.4.

Oregon January Report.—Dr. Byron E. Miller, secretary of the State Board of Medical Examiners of Oregon, reports the written examination held at Portland, Jan. 3-5, 1905. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of persons examined was 23, of whom 19 passed and 4 failed.

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College	(1896) 80, (1898)	[illegible]
Kansas City Medical College	(1903)	[illegible]
Eclectic Medical Institute	(1904)	[illegible]
University of Minnesota	(1903) 84, 79; (1904)	[illegible]
Rush Medical College	(1902) 79, 81; (1903) 83, (1904)	[illegible]
Starling Medical College	(1888) 82, (1896)	[illegible]
Trinity Medical College	(1901)	[illegible]
American Medical Missionary College	(1904)	[illegible]
University and Bellevue Hospital Medical College	(1875)	[illegible]
Vanderbilt University	(1900)	[illegible]
Marion Sims-Beaumont College of Medicine	(1904)	[illegible]
Bennett College of Eclectic Medicine	(1902)	[illegible]

FAILED.

Pulte Medical College	(1879)	57
Northwestern University	(1884)	72
Kings and Queens College of Physicians	(1888)	59
University of Michigan	(1885)	*

*Withdrew from examination.

Wyoming Report for 1904.—Dr. George P. Johnstone, secretary of the State Board of Medical Examiners of Wyoming, reports that during 1904 sixty-five persons were licensed to practice medicine and that seven persons were refused license because they were unable to furnish satisfactory credentials.

Rush Medical College had 11 representatives; Jefferson Medical College, 2; Eclectic Medical Institute, Cincinnati, 1; Kansas Medical College, 1; University of Colorado, 3; Barnes Medical College, 2; University of State of New York, 1; College of P. and S., Keokuk, 1; Bennett Medical College, 1; Lincoln Medical College, 2; McGill University, 1; Dalhousie University, Nova Scotia, 1; Denver and Gross Medical College, 4; Marion-Sims-Beaumont, 1; Washington University, Medical Department, St, Louis, 1; College of P. and S., Chicago, 3; Trinity College, Toronto, 1; Baltimore University, 4; Missouri Medical College, 1; University of Nebraska, 2; University of Japan, 1; University Medical College, Kansas City, 2; Eclectic Medical University, Kansas City, 1; Medico-Chirurgical College, Kansas City, 1; Homeopathic Medical College, Kansas City, 1; Columbia University, 1; National University, Washington, 1; College of P. and S., St. Louis, 1; University of Vermont, 1; University of Michigan, 1; Alexander University, 1; Germany, 1; Hospital College of Medicine, Louisville, 1; Hering Medical College, Chicago, 1; Baltimore Medical College, 1; University of Minnesota, 1; University of Buffalo, 1; Eclectic Medical College, Penn., 1; Omaha Medical College, 2; University of Iowa, 1; Kansas City Medical College, 1.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 11, 1905:

Winn, Robert N., and Thomason, Henry D., asst.-surgeons, ordered to report to Lieut.-Col. George H. Torney, deputy surgeon general, U. S. Army, General Hospital, Presidio of San Francisco, for examination for promotion not later than March 3, 1905.

Mathews, Geo. W., asst.-surgeon, retired as captain, to date Feb 2, 1905.

Smart, Robert, asst.-surgeon, order changing station from Fort Du Pont, Del., to Fort Sheridan, Ill., is revoked.

Jean, Geo. W., asst.-surgeon, granted two months' leave of absence.

Banister, Wm. B., surgeon, ordered to accompany Second Squadron, Eighth Cavalry, from Jefferson Barracks, Mo., to San Francisco, and then return to proper station.

Thornburgh, R. M., asst.-surgeon, left Fort Warren, Mass., on ten days' leave of absence.

Baker, David, and Buck, Carroll D., asst.-surgeons, ordered to accompany Sixth Infantry from Fort Leavenworth, Kan., to San Francisco.

Torney, George H., deputy surgeon general, reports in temporary charge of C. S. O. Department of California.

Smart, Robert, asst.-surgeon, ordered to proceed from Fort Du Pont, Del., to Fort Myer, Va., for duty.

Wilson, James S., asst.-surgeon, ordered to proceed from Fort Myer, Va., to Fort Oglethorpe, Ga., for duty.

Little, Wm. L., asst.-surgeon, ordered to proceed from Fort Oglethorpe, Ga., to Jackson Barracks, La., for duty.

Marvin, Marion F., contract surgeon, granted an extension of one month to his leave of absence.

Sanford, Joseph L., contract surgeon, ordered from Clinton, Va., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Anderson, Everett, A., contract surgeon, ordered from Georgetown, Ky., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Hewitt, John M., contract surgeon, ordered from Kewanee, Ill., to Jefferson Barracks, Mo., to accompany the Second Squadron, Eighth Cavalry, thence to Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 11, 1905:

Wells, H., medical director, commissioned medical director, with rank of captain, from Jan. 1, 1905.

Drake, N. H., medical inspector, commissioned medical inspector, with rank of commander, from Jan. 1, 1905.

Stepp, J., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Bishop, L. W., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to continue duties at the Navy Yard, N. Y.

Blue, J. H., and Foster, T. G., asst.-surgeons, appointed asst.-surgeons, with rank of lieutenant (J. G.), from Jan. 16, 1905.

Harmon, G. E. H., medical director, commissioned medical director, with rank of captain, from Dec. 15, 1904.

Hibbett, C. H., medical inspector, commissioned medical inspector, with rank of commander, from Dec. 15, 1904.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan. 20, 1903.

Mayers, G. M., asst.-surgeon, ordered to the Naval Hospital, New York.

Elmore, B., A. A. surgeon, ordered to the Navy Yard, Washington, D. C., for duty at the Naval Hospital.

Von Wedekind, L. L., surgeon, ordered to the Naval Training Station, Newport, R. I., with additional duty on board the *Constellation*.

Barber, G. H., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the *Ohio* Feb. 25, 1905.

High, W. E. G., asst.-surgeon, detached from duty with Marine detachment, Midway Island, and ordered to the Naval Training Station, San Francisco.

Tyree, F. W., A. A. surgeon, detached from the Navy Yard, Charleston, S. C., ordered to duty with Marine detachment on Midway Island.

Grunwell, A. G., surgeon, when discharged from treatment at the Naval Hospital, New York, ordered to duty at that hospital.

Odell, H. E., P. A. surgeon, detached from the Naval Hospital, New York, February 15, and ordered to the *Galveston* Feb. 15, 1905.

DeValin, C. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan., 31, 1903.

Plummer, R. W., P. A. surgeon, ordered to the Navy Yard, Charleston, S. C., February 17.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Feb. 5, 1905:

Gassaway, J. M., surgeon, granted leave of absence for ten days from February 9.

Richardson, T. F., P. A. surgeon, to proceed to Savannah Quarantine and assume temporary charge of the Service during the absence, on leave, of A. A. Surgeon W. J. Linley.

Wilson, R. L., P. A. surgeon, granted leave of absence for one month from March 1.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days from Feb. 2, 1905, under Paragraph 191 of the Regulations. Granted extension of leave of absence for twenty-three days from February 9.

Duffy, F., A. A. surgeon, granted leave of absence for seven days from February 8.

Hargis, J. W., A. A. surgeon, granted leave of absence for twenty days from February 8.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from February 13.

McConnell, E. F., A. A. surgeon, granted leave of absence for thirty days from February 1.

Morris, G. A., pharmacist, relieved from duty at Fort Stanton, N. M., and directed to proceed to St. Louis, Mo., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist J. M. Bell.

Bell, J. M., pharmacist, on being relieved from duty at St. Louis by Pharmacist G. A. Morris, to proceed to Fort Stanton, N. M., and report to the medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, Baltimore, Feb. 3, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon C. W. Wille, chairman; A. A. Surgeon G. H. Steuart, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 3 to Feb. 11, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Jan. 28-Feb. 4, 1 case.

Georgia: Macon, Jan. 21-28, 1 death.

Illinois: Jan. 28-Feb. 4, Chicago, 13 cases, 6 deaths; Galesburg, 1 case.

Kansas: Topeka, Jan. 28-Feb. 4, 1 case.

Louisiana: New Orleans, Jan. 21-Feb. 4, 23 cases, 1 death, 9 cases imported.

Maine: Perry, Feb. 1, 1 case.

Michigan: Detroit, Jan. 28-Feb. 4, 3 cases.

Missouri: St. Louis, Jan. 28-Feb. 4, 38 cases.

New York: New York City: Jan. 21-Feb. 4, 9 cases, 1 death.

Ohio: Toledo, Jan. 28-Feb. 4, 6 cases.

South Carolina: Charleston, Jan. 28-Feb. 4, 5 cases.

Tennessee: Jan. 28-Feb. 4, Memphis, 14 cases; Nashville, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Dec. 10-24, 2 cases.

SMALLPOX—FOREIGN.

Bosnia and Herzegovina, Nov. 1-30, 22 cases, 3 deaths.

Brazil: Pernambuco, Dec. 15-31, 110 deaths; Rio de Janeiro, Jan. 1-8, 45 cases, 15 deaths.

Ecuador: Guayaquil, Jan. 4-18, 3 cases; Manabi Province, Jan. 4, present.

France: Paris, Jan. 14-21, 17 cases, 3 deaths.

Germany: Bremen, Jan. 7-14, 1 case.

Great Britain: Glasgow, Jan. 20-27, 1 death; Jan. 14-21, Hull, 4 cases; Liverpool, 1 case; London, 1 case; Newcastle-on-Tyne, 11 cases; South Shields, 11 cases.

India: Bombay, Dec. 20-Jan. 10, 102 deaths; Calcutta, Dec. 17-Jan. 7, 5 deaths; Karachi, Dec. 24-Jan. 8, 6 cases, 1 death; Madras, Dec. 17-Jan. 6, 5 deaths.

Italy: Catania, Jan. 12-26, 4 deaths; Palermo, Jan. 7-21, 43 cases, 9 deaths.

Luxemburg: Dec. 1-15, 3 cases.

Mexico: City of Mexico, Dec. 17-Jan. 7, 4 cases, 4 deaths.

Netherlands: Rotterdam, Jan. 21-28, 2 cases.

Russia: Jan. 7-14, Odessa, 1 case; St. Petersburg, 2 cases, 3 deaths; Warsaw, Nov. 26-Dec. 3, 3 deaths.

Spain: Barcelona, Jan. 10-20, 12 deaths.

Straits Settlements: Singapore, Dec. 17-31, 2 deaths.

Turkey: Constantinople, Jan. 15-22, 17 deaths.

Venezuela: La Guaira, Jan. 21, epidemic.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 1 8, 1 case.

Mexico: Coatzacoalcos, Jan. 21-28, 1 case; Merida, Jan. 22-28, 1 case.

Panama: Colon, Jan. 28, 1 case, probably imported.

PLAGUE—INSULAR.

Philippine Islands, Manila, Dec. 3, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony (East London), Dec. 25, 1 death.

Arabia: Aden, Dec. 31-Jan. 14, 161 cases, 116 deaths.

Brazil: Guaratingueta, Nov. 30-Dec. 18, 11 cases; Rio de Janeiro, Jan. 1-8. 22 cases, 11 deaths.

Egypt: Dec. 31-Jan. 7, Suez, 2 cases, 3 deaths; Tukh, 1 case, 1 death.

India: Bombay, Dec. 20-Jan. 10, 374 deaths; Calcutta, Dec. 15 Jan. 7, 67 deaths; Karachi, Dec. 25-Jan. 8, 120 cases, 105 deaths.

Siam: Bangkok, Dec. 17-24, present.

Siberia: Slobodskoi and Vigatka districts, Oct. 18-Dec. 14, 227 cases.

CHOLERA.

India: Bombay, Dec' 20-Jan. 10, 1 death; Calcutta, Dec. 15-Jan. 7, 304 deaths.

Russia: Dec. 7-14, Astrachan, 1 case; Baku province and city, 459 cases, 355 deaths; Erivan province and City, 1,506 cases, 1,265 deaths; Samara, 17 cases; Saratov, 10 cases; Trans-Caspian province, 40 cases, 1 death.

Turkey in Asia: Jan.-Dec. 26, 10,466 cases, 9,192 deaths.

Medical Organization.

Delaware.

This state now has a medical society in each county, every one of which has adopted the standard constitution and by-laws.

Sussex County Medical Society.—This society has elected Dr. Robert B. Hopkins, Milton, president, and Dr. Roland G. Paynter, Georgetown, secretary.

Kent County Medical Society.—At the annual meeting, Dr. James H. Wilson was elected president, and Dr. L. August H. Bishop, secretary, both of Dover.

Newcastle County Medical Society.—At the annual meeting, Dr. Peter W. Tomlinson was elected president; Dr. Joseph P. Wales, vice-president; Dr. Harold L. Springer, secretary, and Dr. William G. Winner, treasurer, all of Wilmington. The society endorsed any and all measures looking toward establishing a high standard of purity of the milk supply. At a previous meeting the standard constitution and by-laws had been adopted.

Nevada.

Nevada State Medical Society.—At the annual meeting of the Nevada State Medical Society, held in Reno, Dec. 19, 1904, the society was reorganized on the standard plan with the following officers: Dr. W. Lee Moore, Verdi, president; Drs. Charles E. Mooser, Reno, and M. R. Walker, Reno, vice-presidents, and Dr. John L. Robinson, Reno, secretary-treasurer.

South Carolina.

Georgetown County Medical Society.—Physicians of the county met at Georgetown, February 6, and after addresses by Dr. Walter Cheyne, councilor of the district, and Dr. J. N. McCormack, organized a county society on the standard plan, with the following officers: Dr. M. P. Moorer, president; Dr. H. D. Beckman, vice-president; Dr. Olin Sawyer, secretary-treasurer; Drs. F. C. Clark, W. M. Gaillard and L. B. Salters, censors, and Dr. William E. Sparkman, delegate to the state association, all of Georgetown.

Greenwood County Medical Society.—Dr. J. N. McCormack addressed a meeting of physicians of the county at Greenwood, February 10, after which a county society was organized on the standard plan with the following officers: Dr. G. Pressly Neal, Greenwood, president; Dr. John Lyon, Ninety-six, vice-president; Dr. R. B. Epting, Greenwood, secretary; Drs. James B. Hughey, Greenwood, William T. Jones, Jones, and F. G. Moss, Verdery, censors, and Dr. Sanders L. Swygert, Greenwood, delegate to the state medical association. Dr. Mayer, councilor of the district, was unable to be present owing to serious illness.

Society Proceedings.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Jan. 11, 1905.

The First Vice-President, Dr. Franklin B. Stahl, in the Chair.

The Practice of Medicine in India.

Dr. Anna M. Fullerton gave an account of the difficulties attending the practice of medicine in India in consequence of social and religious customs. This, with the dense ignorance and grinding poverty of the mass of the people, are responsible for the widespread epidemics which prevail and which have baffled all the efforts of the English government to suppress. High caste women can never see a male physician, but must be treated by ignorant native midwives, and shocking mutilations often occur, for which repair of any kind is impossible. The hospitals established by the English government, and especially mission hospitals and dispensaries, are creating a sentiment in favor of western medicine.

The Antitoxin Treatment of Diphtheria.

Dr. B. Franklin Royer of the Municipal Hospital, by statistics of the Board of Health of Chicago, New York City, Brooklyn and Philadelphia, proved an actual decrease in the loss of life in each city respectively at 5,400, 8,204, 951, and 1,853, a total for these four cities, without allowing for increased population, of 16,408 lives. By a table including 67,748 patients treated in the Metropolitan Asylums Board Hospital, a decrease in death rate of 15.24 per cent. was shown. By a table from the South Department in Boston, reporting 16,544 cases, a decrease of 29.26 per cent. was shown. In the Municipal Hospital, reporting 10,219 cases, there was a decrease of 10 per cent. He recommended that the dose of antitoxin be in proportion to the amount and location of exudate. He recommended large doses of antitoxin in nasal, naso-pharyngeal and laryngeal diphtheria, and urged a more general use of antitoxin as an immunizing agent, and earlier in the disease, without waiting for culture returns. The dose in use at the Municipal Hospital is: for tonsillar exudate (single), 2,500 units; purely tonsillar (double), 5,000 units; tonsillar exudate with pillars and uvula or pharynx involved, 7,500 to 10,000 units: nasal and any other part involved or for laryngeal diphtheria, 7,500 to 10,000 units. Repeat the dose in each type of disease in from 12 to 24 hours, depending on the sign of improvement, and every 24 hours thereafter; when a large amount of exudate persists, a dose of 5,000 to 7,500 units is given until a good part of the exudate has disappeared

Severe Case of Acute Chorea Treated Successfully with Apomorphin.

Dr. Montrose Graham Tull reported a case of acute chorea coming on gradually in a girl, fifteen years of age, with menstruation not fully established, presenting symptoms of acute mania, thickened tongue, gutteral and unintelligible articulation and with incessant choreic movements. The body was covered with a confluent, morbilliform rash. After all the accepted forms of treatment had been tried with absolutely no effect, he concluded to try apomorphin in tentative doses: one fortieth of a grain was administered hypodermically with remarkable result. The choreic movements ceased in about three minutes, and the child slept peacefully and quietly. One twentieth of a grain of apomorphin, every three hours, by the mouth, was continued for three or four days, in addition to the arsenic which she had taken from the beginning, and the patient made an uninterrupted recovery.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. James M. Anders, in the Chair.

The Need of Early Operation in Surgical Diseases of th

Abdomen.

Dr. John B. Roberts exhibited a specimen of stricture of the sigmoid flexure due to ulceration of the mucous memb the A diagnosis of obstruction of the gastrointestinal canal in th neighborhood of the pylorus and duodenum had been The condition of the patient was so bad that a jejun was performed for the purpose of feeding the patient a more extensive examination of the abdomen. Death after a few days from exhaustion. It was then found that obstruction was in the sigmoid flexure. Early operative would almost certainly have been accomplished by excision of the gut or by intestinal anastomosis. The second specimen showed a perforated duodenal ulcer close to the pylorus. A time for operation was appointed, but before that time perforation occurred. Immediate operation was then advised as a last resort, but the patient and his friends would not consent. Dr. Roberts believed that a gastrojejunostomy, done a day or two prior to the time of perforation, would have saved this patient's life. Specimen No. 3 was a perforated appendix removed from a case which had come under Dr. Roberts' care about forty hours after an attack of abdominal pain. When he saw the man his pulse was 160 and very feeble. His hands were cold; his face was covered with a clammy sweat, and the abdomen was distended and painful. Believing that operation would almost certainly result in death, Dr. Roberts abstained from even opening the abdomen. Autopsy showed the lower abdomen full of pus, with a gangrenous opening in the appendix big enough to admit a lead pencil. The fourth specimen was a large gallstone, measuring an inch and a half by three-quarters of an inch, from the gall bladder of a woman who for a number of years had suffered repeated attacks of pain in the region of the gall bladder. Operation showed the stomach, gall bladder, liver and omentum to be bound together by old and firm adhesions. The gall bladder was dragged backward until its fundus pointed toward the spinal column. It was entirely filled by this large stone. The patient had, in addition, a bent and adherent appendix from former attacks of appendicitis. The gall bladder was opened, the calculus removed, and the appendix excised. Drainage through the lumbar region was employed and a large drainage tube was introduced through the abdominal incision. The patient did moderately well for about two days and then died from asthenia. The case illustrated the importance of cholecystotomy in the early stage of all cases of gallstone disease. The fifth specimen was a globular gallstone, about three-quarters of an inch in diameter, removed from the junction of the hepatic, cystic and common gall ducts. The patient had great pain, and persistent jaundice, which at the time of operation gave her a dark bronze color. Choledochotomy was required for extraction of the stone and was followed by hepatic and abdominal drainage. The specimens were shown to call attention to the importance of operating on gall-bladder disease, inflammations of the appendix, and obscure lesions of the stomach and intestines early. Dr. Roberts believes that the best results will undoubtedly be obtained in such cases by early exploratory incision, followed by operations for relief, even if such surgical methods are employed before definite diagnosis can be made. He stated that the profession and the public should realize that this is the teaching of modern surgery.

A New Saw for Cranial Surgery.

DR. H. C. MASLAND exhibited a skull saw, which will be illustrated in THE JOURNAL.

DISCUSSION.

DR. JOHN B. ROBERTS said the saw seemed to be a very efficient instrument, and agreed with Dr. Masland that it did not need the guard, since in cutting through bone one can tell by the feeling when it is cut through.

DR. T. H. WEISENBURG did not agree with Dr. Masland that it was not necessary to have the saw set to cut thicker than a quarter of an inch, since he had seen some skulls in which a deeper cut was required. Neither did he agree that it was unnecessary to have a circular incision. The circular flap, in his opinion, is more easily replaced and is better for cosmetic reasons. He further disagreed with Dr. Masland in regard to the matter of time, and referred to Dr. Frazier's operations in the University Hospital, in which he opened the skull in two minutes and seldom exceeded three or four minutes, which Dr. Weisenburg thought could scarcely be improved on.

DR. MASLAND said that the instrument used by Dr. Frazier made an incision an eighth of an inch wide, which does not offer so great a probability of union through the line of incision as a cut one millimeter in width. This also guarantees a minimum waste of bone, and replacement without sinking.

The Limitations and Possibilities of Electricity in the Treatment of Diseases of Women.

DR. BARTON COOKE HIRST has found an advantage in the use of galvanism and faradism in a limited number of diseases of women. As a hemostatic agent, in uncomplicated small fibroid tumors, with no other symptoms than metrorrhagia, it is one of the most efficient. He finds electricity useful also in the treatment of amenorrhea and sterility the result of imperfect development, or atrophy of the uterus. Two illustrative cases were reported in which normal menstruation was restored and conception occurred, following this treatment. In one woman there had been amenorrhea for a year. In the other the menstruation had been reduced to a scanty discharge, lasting less than a day, the result of lactation atrophy. The third indication is to restore tone to a paretic sphincter ani muscle after its restoration by surgical means, in cases in which repeated attempts had been made to restore the muscle, with failure, and in which there had been no contractile power exercised for a number of years. A fourth indication for the use of electric currents was found in certain types of dysmenorrhea associated with a poorly-developed uterus. Local treatment, however, he believes, is very rarely practicable in such cases. This comprises all the conditions in which it can be hoped to accomplish much by electricity.

Toxic Changes in Brain and Spinal Cord Due to Carcinoma.

DR. T. H. WEISENBURG said that the influence of carcinoma of parts other than the brain and spinal cord on the nervous system is becoming better recognized. Metastasis may occur in the brain, where it may be either in the form of a tumor or as an infiltration of cancer cells of the pia of the cortex or of the base of the brain. A case is recorded where basal syphilis was diagnosed, but at the autopsy a metastatic cancer was found. This teaches that whenever cerebral symptoms occur in the course of carcinoma, no matter in what form they appear, metastasis should be thought of in the diagnosis. In the spinal cord, metastasis generally involves the spinal vertebræ, causing a pressure myelitis. Cases are recorded where during the course of the disease such symptoms as mental apathy, dementia, hemiplegia and aphasia occurred. These are undoubtedly of toxic origin. Dr. Weisenburg stated that he has recorded cases of bulbar symptoms and dementia in which a careful microscopic examination of the brain and spinal cord demonstrated alterations in the nerve cells of the medulla oblongata and pons. In another case, where there were no cerebral symptoms, changes were also found in the nerve cells of the cortex. Such findings have not been previously recorded.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. John B. Murphy, in the Chair.

The Therapeutic Use of the X-Rays.

DR. WILLIAM ALLEN PUSEY read a paper with this title which will appear in THE JOURNAL.

The Treatment of Lymphatic Leukemia with the X-Ray.

DR. JOSEPH A. CAPPS and DR. JOSEPH F. SMITH reviewed the progress made in this field.

The first case was treated by Dr. Pusey for one month, but without improvement. In 1903 Dr. Nicholas Senn reported a case of leukemia symptomatically cured. The patient presented the typical symptoms of splenomyelogenous leukemia, and had been ill for fourteen months. Treatment was begun daily and was given every other day, through the latter part of January, and during February, March, April and May, and at the time of Senn's last observation, the white count came down to 10,000, and the spleen was almost of normal size. The patient felt perfectly well, but died later with symptoms of toxemia. Cases of lymphatic leukemia treated by Senn, Churchill and Pusey died inside of seventeen months.

The authors reported three cases of lymphatic leukemia treated by the x-rays, two of which were of the acute form. One patient died in six days, and the other in ten days. Of the subacute cases there were two. While the *x*-ray exerted a beneficial effect, it did not control the disease. Better results were obtained in treating the chronic cases, and of these the authors reported three instances. They stated that patients with splenomyelogenous leukemia should receive *x*-ray treatment because they are greatly benefited thereby. They respond more slowly than do patients with chronic lymphatic leukemia. These patients feel that they are cured, but in the light of Senn's case and of other cases reported as symptomatically cured, some of which have since died, physicians must not be too sanguine in regard to pronouncing cures. It is altogether probable that some of these cases are not cured, but that the process is held in abeyance. Oftentimes in leukemia the spleen will diminish in size and the blood count come down under *x*-ray treatment, and the patient, so far as the leukemia is concerned, is very much better symptomatically, but the disease reasserts itself always.

DISCUSSION.

Dr. Oliver S. Ormsby referred to observations of more than two hundred cases of epithelioma treated by the *x*-ray. The cases that had been relieved most were of the superficial rodent ulcer type. The results were uniformly good. In two cases there was a mild recurrence. Nineteen cases of superficial epithelioma of the lip were treated with excellent results. Psoriasis of the scalp can be removed with the *x*-ray without removing the hair. The results in eczema and in acne rosacea are excellent. In seventeen cases of sycosis the results were good, one-half of the patients being entirely well. In two obstinate recurrences took place. In keloid their results in eleven cases were the same as those mentioned by Dr. Pusey. Thirty-five cases of lupus erythematosus were treated, combining radial with phototherapy, with excellent results.

Dr. E. A. Fischkin stated that cases of sycosis and keloid reacted beautifully to *x*-ray treatment. He spoke of the idiosyncrasy of different patients to the *x*-ray. He mentioned two patients who had psoriasis, a brother and a sister; the sister was cured after six or eight treatments, with no recurrence after two years. Although the brother has had over one hundred treatments, the psoriasis has increased all over the body. There is no evidence of cure of any of the lesions. This case illustrates that there is a decided difference in the reaction of patients to the *x*-ray.

Dr. R. R. Campbell stated that in two cases of blastomycosis which he had treated by the *x*-ray without the administration of iodid of potassium his results had been the same as those of Dr. Pusey. The cases of epithelioma of the lip he had selected for *x*-ray treatment were of the superficial type. In two cases out of twelve, in which there was some slight induration, he failed to get any beneficial results from the *x*-ray. In a case of epithelioma of the lip, in which it becomes necessary to curette, he thinks the domain of the *x*-ray ceases, and the case properly belongs to surgery. His results in lupus erythematosus have not been satisfactory. In lupus vulgaris the *x*-ray is eminently the best treatment. In acne his experience has been gratifying.

Dr. David Lieberthal corroborated what the other speakers said in regard to the treatment of acne, lupus vulgaris, acne rosacea, etc., with the *x*-ray. He emphasized the importance of carefully selecting and classifying cases.

Administration of Oxygen Gas.

Dr. H. J. Burwash referred to a paper by Kellogg of Battle Creek, Mich., entitled "Oxygen Gas Per Enema," which was published in 1887. In this paper, Kellogg discusses at length experiments on guinea-pigs, showing that this gas per enemata is readily absorbed, and that dark venous blood is noticed to be immediately changed into bright arterial blood by its application. He, therefore, recommends this method for the treatment of diseases of the liver and digestive organs. He reports many cases, nearly all being of digestive troubles. Dr. Burwash has made a new application of this method by using it in the treatment of the acute respiratory diseases, particularly pneumonia. He first used it in August, 1891, in a severe typhoid case, after failing to resuscitate the patient by the usual method of inhalation. The patient was a young girl, sixteen years of age, who became profoundly toxic, delirious and cyanotic. The gas by inhalation did not appear to revive her from the stupor, and then it occurred to him to administer the gas per enema. He gave her one gallon; after two minutes' duration the respiration became more exhilarated, and the deep cyanosis disappeared. The patient recovered after a very protracted illness.

Since that time he has continued to use oxygen per enema in all his critical cases, especially pneumonia. It is plainly apparent that the introduction of a large quantity of oxygen into the intestinal canal not only neutralizes and deodorizes the noxious gases that are frequently present there, but also introduces oxygen through the portal system to the liver, whose cells are not only stimulated to greater activity, but are nourished as well. Besides this, the already overcharged lungs are assisted in their function of aëration of the blood.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held Dec. 9, 1904.

Dr. Samuel Wolfe in the Chair.

Report of a Case of Pancreatic Cyst.

Dr. M. J. Karpeles reported the case of a male, aged 68, with a negative family and personal history. He first complained of discomfiture in the left side, the principal symptoms being marked nausea, with occasional vomiting of a dark green, non-odorous, thin watery fluid, in an amount out of proportion to that ingested; general pruritus, especially of the hands; dyspnea on least exertion; profound weakness; epistaxis; colicky pains, and frequent attacks of diarrhea and insomnia. The stools were found to be free from fat. The urine showed a low specific gravity, a trace of albumin and the presence of bile. On physical examination a tender area was elicited at the costal margin in the left mammillary line. Ten days later, it was possible to outline in this region a mass the size of an egg which, at the time of the patient's death, about three weeks later, involved the left half of the epigastrium, the left hypochondrium, the umbilical and the left lumbar regions. As this fluctuating mass, which was diagnosed as a pancreatic cyst, enlarged, the gastrointestinal symptoms proved more rebellious, the jaundice became more marked, the insomnia required hypnotics, and the general discomfiture increased. In view of the marked prostration and jaundice, operation was not deemed advisable. At autopsy a large pancreatic cyst was found, containing about two liters of a grayish fluid. The cyst wall was thin and the inner lining smooth. It was impossible to determine the part of the gland in which the cyst originated.

DISCUSSION.

Dr. David Riesman stated that in the differential diagnosis we should consider (1) cystic gall bladder; (2) hydronephrosis; (3) echinococcus cyst in women, and (4) ovarian cyst. He stated that jaundice is not so prominent in cases of cystic gall bladder, but may be present. In hydronephrosis with renal crises and long history of pain, floating kidney should be taken into consideration; ovarian cyst should be differentiated by vaginal examination, and echinococcus cyst by the patient's habits. In the case reported, exhaustion and epistaxis rendered operation inadvisable, although possibly tapping of the sac, after sewing or stitching it to the abdominal wall, might have been of value, if the epistaxis had not been so great. Where the tumor occurs in the epigastrium, extending into the left hypochondrium, and is accompanied by pains in the celiac plexus, these symptoms are sufficient to warrant a provisional diagnosis of pancreatic cyst. The danger of fat necrosis occurring by reason of the fluid getting into the abdominal cavity is quite small, although cases have occurred in which the tumor evacuated itself into the intestinal canal. The surgical treatment is the one that should be employed.

The Etiology and Diagnosis of Cholelithiasis.

DR. WILLIAM RUOFF stated that no common etiologic factor could be assigned to all cases. Age is an important factor, the majority of cases occurring between the ages of 40 and 60, and the more frequent occurrences in females he laid to the mode of dress and pregnancy. The influence of age might be manifested through the loss of contractile power of the bladder, thus favoring retention and the lack of resisting power of the body fluids. He felt that too much importance is attached to temperament, gluttony, excessive indulgence in meats and fats, heredity and climate. He discussed in detail the different varieties: (1) Pure cholesterin stone; (2) laminated cholesterin stone; (3) ordinary gallstones; (4) mixed bilirubin-calcium stones; (5) the rarer forms, such as (a) amorphous stones, resembling pearls: (b) chalk stones; (c) concretions surrounding foreign bodies; (d) casts of bile ducts. He then considered in detail the infective causes through the medium of the portal circulation and through an ascending infection from the common duct, and the influence of appendicitis, salpingitis, peritonitis, etc. The diagnosis was considered under three heads: (1) cases in which no symptoms have been produced and which are usually discovered at autopsy; (2) transitory symptoms of dyspepsia and abdominal and liver symptoms; (3) those cases causing severe and, at times, almost fatal illness, which are most frequently met with. The symptoms of jaundice, vomiting, hepatic and cystic infection were considered, as was also the symptom of impaction.

Gallstone Disease, Remote Effects and Treatment.

DR. SAMUEL P. GERHARD stated that our efforts must be mainly surgical; that the gallstones, as long as they remained in the bladder, are perfectly harmless, but that the danger is due to the liability of accidents in their passage through the common duct, considering under this head cholecystitis, empyema and gangrene, pancreatitis, fistula into a neighboring organ, peritonitis, etc. The medical treatment should be prophylactic, directed to preventing rather than curing the disease.

DISCUSSION.

DR. DAVID RIESMAN stated that the youngest patient he had ever seen was 11 years, and the oldest 70 years. He said that the essential features in the diagnosis are pain in the region of the gall bladder below the costal cartilage in the right parasternal line, although the location of the pain is not absolutely necessary, and vomiting and jaundice. He referred to the case of a man, 37 years of age, who had suffered from cramplike pains for a number of months, chiefly in the epigastric and left hypochondriac regions, unassociated with vomiting. He had lost 20 pounds in weight. At operation, gallstones were found in the cystic duct; there was no jaundice and no tenderness in the gall bladder region. He also referred to several other cases in which the characteristic symptoms were not present. In his experience the *x*-ray has not been of value in the diagnosis of these cases. He referred to the method of Dr. DaCosta of placing a cylindrical pad under the patient, so that the patient forms an inclined plane with the table, and then by gently rubbing with the hand, an enlarged gall bladder may be felt. Referring to the pathogenesis, he stated that, without infection, the passage of the stone would cause inflammation of the gall bladder and ducts. He believes that many of the cases which were called biliousness were really due to gallstone attacks. He referred to the occurrence of the condition after infectious diseases, and referred to a case diagnosed as duodenal ulcer, which on operation proved to be an infected gall bladder. The persistence of jaundice should suggest a stone or malignant disease. He expressed the belief that the surgical treatment would assume the same place it had in appendicitis.

DR. JOHN B. DEAVER stated that he had never seen nor operated on a case of gallstones in a colored subject. He divided the condition into two classes: cholelithiasis of the gall bladder and affections of the common duct. The pain and tenderness in the epigastrium are less frequent in disease of the common duct than in gall-bladder inflammation. He believes that the pain in the majority of instances is due to infection. Jaundice as a diagnostic factor is very misleading. He never operated on acute cases, but if the symptoms persist, then the value of operation must be considered. The *x*-ray is not of much value in diagnosis. He did not recommend operation in cases of acute common duct obstruction. The operation, if performed, should be done early. He does not approve of operating in private houses. He emphasized the value of careful preparation of the patient prior to operation, including careful urinalysis. Stomach analysis is not of much value, except in cases of acute leucocytosis. He favored drainage of the gall bladder rather than its removal, unless there was some indication for the latter procedure.

DR. WILMER KRUSEN referred to the case of a woman, 32 years of age, who had suffered with gall-bladder disease for a period of eight years without the true condition being suspected. The *x*-ray failed to reveal the seat of the trouble. At the operation for removal of a cystic ovary, forty-three stones were removed from the gall bladder and the woman made a good recovery. Another case was reported, in which an operation was done for appendicitis and the appendix was found not to be diseased. Two days later the patient had a pulse of 140, temperature of 103 to 104, and a marked enlargement over the gall bladder. Operation showed an empyema of the gall bladder, and 420 stones were removed therefrom, but the patient died within twenty-four hours from general peritonitis. He believes that gall-bladder disease is as much a surgical procedure as appendicitis, and that the sooner the operation is done the better for the patient.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(Continued from page 497.)

Vienna.

One of the first questions a medical traveler is likely to be asked by his colleagues on his return to America is: "How did you like *Vienna?*" And a layman hearing that a physician has spent some months in Europe almost invariably remarks, "I presume that you spent most of your time in Vienna," such a fame has that city had as a medical center. Although in Europe twice before, on neither trip had I been able to visit the Austrian capital; I was all the more anxious, therefore, this time to arrange to visit the city and its hospitals and to meet some of its famous medical men.

UNIVERSITY OF VIENNA.

The University of Vienna, founded as long ago as 1365, compels on account of its remarkable history the veneration and respect of every visitor. And in that history the medical faculty has played a very important part, not only in the development of medical teaching and practice, but also in the forwarding of the interests of science and arts in general. One has only to read that best of books on medical education, Billroth's "Ueber Lehren und Lernen," to become impressed with the influence of the medical faculty on the progress and development of the University of Vienna as a whole. Great organizing minds like that of the distinguished Van Swieten are rare, even in the greatest of universities; fortunate are those institutions within which they occasionally develop. One such man may shape the destiny of a university for generations; this has been true in Vienna, and it is pleasing to find that the Viennese, conscious of their debt to a great master, have in more than one artistic movement done their best to perpetuate the memory of Van Swieten in the city he loved and for which he worked.

VIENNA AS A MEDICAL CENTER.

While Vienna has long enjoyed the reputation o[illegible]ing the most important medical center in [illegible]ope, and i[illegible] doubtless very great, there are some who think that it can no longer justly lay claim to the first place. That honor, they think, now belongs to Berlin. The latter city has in the last ten years made enormous strides forward; one would scarcely believe the change without actually observing it for himself; Vienna seems—some have even dared to say—a little provincial by comparison. The explanation in all probability lies in the growing prosperity of Germany, the increase in material means in the capital of the German empire, the determination to seek the best men for university chairs irrespective of their nationality, and the encouragement of original research in the various departments rather than directing too much effort toward increasing the number of under graduate students and of the less advanced class of postgraduate workers. Vienna, it is asserted, is not as prosperous a city now as Berlin, the finances of Austria are not in as satisfactory a condition as those of Germany, the money available for university purposes is less,[2] there has been, these critics hold, a tendency to "in-breeding" in the faculty, the average Austrian and especially the average Viennese is no lover of travel, is prone to be satisfied with "good old Vienna," and to know but little and care less of what goes on in the world outside it; finally, it is maintained that, with notable exceptions, of course, the efforts of the faculty have been devoted too exclusively toward teaching the known and too little toward the discovery of the hitherto unknown. But even if these critics are right, it should be remembered that it is difficult to make a statement which is just in general without appearing to be unjust in particular. There are undoubtedly in Vienna to-day a number of the most energetic and productive scientific investigators that exist in the world, widely-traveled men of broad training, men with the highest ideals and with great capacity for work who are demonstrating constantly their right to positions in the front rank of medical research.

The material for clinical, anatomic and pathologic work in Vienna is superabundant; its concentration in and about the huge *Allgemeine Krankenhaus* has made medical work there very convenient for the student. Recently a more centrifugal tendency has been noticeable; the work at the Rudolf Spital, the Kaiser Franz-Josef Spital and the Kk. Wilhelminer Spital is rapidly increasing in importance.

Anatomy and histology are well taught in Vienna in the two anatomic institutes, one under the direction of Prof. Carl Toldt, the founder of modern conceptions concerning the development of the alimentary tract and the peritoneal cavity, and the author of the magnificent anatomic atlas which bears his name, the other under the leadership of Prof. Emil Zuckerkandl, well known through his book on topographic anatomy and his original researches on the comparative anatomy of the brain. Dalla Rosa, Tandler and Grosser are active members of the staff. The histologic courses are ably conducted by Professor von Ebner and his assistants, Schaffer and A. Rabl. The anatomic museum is rich in beautiful preparations; the amusing skeleton groups designed and erected by Hyrtl, are among the curiosities to be seen there.

Toldt's atlas, like Spalteholz' Atlas of Human Anatomy, is a triumph of modern bookmaking art; these two works have gone far and will go farther toward making anatomic ideas more exact than ever before and toward unifying and simplifying anatomic nomenclature. The illustrations in both atlases are excellent and are invaluable not only as an aid to dissection, but as a reference book in the practical work of the physician and surgeon. Every practitioner would find it profitable to own and use at least one of these atlases. Both Spalteholz and Toldt have already been translated into English.

Physiology (under Professor Exner's direction) is just moving into a fine new laboratory in Vienna. The new building is adjacent to the older structure: the latter is now to be given over to neurology (under Obersteiner) and to one or two other sub-departments.

It seemed to me that the best organized and most actively productive department in the medical faculty of the University of Vienna was that of pathology, with Richard Paltauf as professor of general and experimental pathology and Anton Weichselbaum as professor of pathological anatomy. Along with these two well-known investigators are associated Gustav Gaertner, Arthur Biedl, H. Albrecht, Anton Gohn, Richard Kretz, F. Schlangenhaufer, Rud. Kraus, H. Winterberg, O. Stoerk, and K. Sternberg, a list of names from which the fame of the university has really much to hope. Biedl's experimental studies on the nervous system, Kretz's investigations on the liver, and Kraus' original researches on bacteriological problems and curative serums are among the most interesting of current conduction. The accounts of their results have to be read by all who keep abreast with progress in these fields.

THE SEROTHERAPEUTIC INSTITUTE.

Professor Paltauf is also the director of the State Serotherapeutic Institute of Vienna and one of the most interesting forenoons I spent in the city was devoted to visiting it in his company. The institute is divided into two parts, one for the strictly scientific work of the institute and the business office, the other for the preparation of serum in large quantities. The former should be situated close to other scientific institutes and close to the postoffice, express office and telegraph station; the latter should be placed where room for extensive stables is available, and where the animals can be exercised in the open air. These different needs were met by establishing the scientific work of the institute and the business office for the distribution of serum temporarily in the bacteriologic institute of the "Rudolfstiftung," while the department for the preparation of serum on a large scale was instituted in the Court of the Kaiser Franz Joseph Hospital in the extreme outskirts of the city. Here stalls have been built for 50 horses, a piece of ground has been set aside for a riding ring in which the horses are saddled and ridden for a certain length of time each day for exercise, and a very complete serum-institute, occupying an area of 360 square meters, has been constructed. On the south side of the latter, an operating room 51 meters square has been built. The description of the Institute given by the resident assistant, Dr. Jellinek[3], should be helpful to any planning a similar structure.

In drawing the plans for the institute, the principle of separating as completely as possible from one another the individual departments with their laboratories for the different kinds of work was adhered to. The various staircases together with the entrance corridor occupy the middle of the building; the machine-rooms are in the cellar; on the ground floor on the left are the rooms for collecting and preparing serum, on the right the laboratories for chemical work and the small rooms used for testing and standardizing the sera. Upstairs, on the right, completely isolated from the other parts of the building, are the laboratories for bacteriologic and histologic work, with all necessary equipment; on the same floor, on the left, are two apartments for resident assistants. Each part of the building has its separate entrance from the central halls.

The institute has been fitted up with the most modern appliances in the way of thermostats, sterilizers, autoclaves, vacuum-pumps, etc. The arrangements for leading the horses in and out of the operating room and for drawing the serum have been made most convenient and simple. The blood obtained by sterile puncture of the vena jugularis is received in sterilized glass cylinders (provided with an [illegible] cover, so arranged that the jars can be filled without entrance of air), and placed in a cooling-room for two days to let the serum separate well. The serum is then transferred under aseptic precautions into large flasks and again allowed to stand for six weeks in the cool room, nothing being added to the serum as yet. By this time the serum has become quite clear; through quiet standing nearly all of the blood corpuscles and flocculi of fibrin have fallen to the bottom. The serum is then transferred to other flasks, in which it is treated with carbolic acid (0.5 per cent.), a precipitate of albumin, phosphates and cholesterin forms, and is filtered off, and the filtrate is preserved in large, flat-bottomed flasks in the cooling chamber.

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[2] The income of the University of Berlin for the year 1903 was 3,406,914½ marks; that of the University of Vienna for 1897 was only 1.159,594 florins.

[3] Jellinek, O.: Die Abteilung für Serumgewinnung des k.k. serotherapeutischen Institutes in Wien. Wien klin. [illegible] 1903, pp. 1403-1405.

The chemical laboratory has been well-planned and though not large, has in it everything necessary for the work, including hood for gases, work tables, sets of reagents, precision-balances, water and gas, vacuum-pump connection, compressed-air connection, centrifugal machine and contact for electrical power for motors.

The bacteriologic laboratories have broad, high windows, lighted from the north: the work tables at the windows rest on iron brackets set into the wall, so that the floor-space remains entirely free; the tables are covered with white enamelled lava, a material which resists chemicals and dyes better than glass or oak, and which on account of its white color makes for cleanliness. The largest thermostat measures nine square meters and is two and one-half meters high; it is heated by gas, can be exactly regulated for any temperature between 33 and 40° C.; that it works well is shown by the curve of the self-registering thermometer attached. A special wash-room has been provided for this laboratory with its own sterilizing apparatus, in order that tubes, glass vessels and other objects used here need not be removed for cleaning to other parts of the building; this is one of the many safeguards against contamination of the laboratory in which the serum is prepared. The machinery in a sero-therapeutic institute is rather complex and a good mechanic is essential to the establishment. A four-horse power electric motor runs a small ammonia refrigerating machine, and a half-horse power motor runs a salt-water pump which pumps the concentrated solution of magnesium chlorid cooled by the machine to —10 degrees C. from the refrigerator to the tubes which cool the rooms in which the serum is kept in the parterre. To the larger motor can be attached when desired the air-pump, which supplies air under pressure on the one hand, and a vacuum-conduction on the other for use in the laboratories; the same motor also drives a pump for hot-water circulation in the building. A vacuum apparatus for concentrating serum, or for evaporating it to dryness, is situated in a special room near by. Inside it are a number of horizontally placed iron plates, in which hot water circulates. The serum in a thin layer in flat sterile glass evaporating dishes is placed on these iron plates; the apparatus is closed air-tight, and the air inside exhausted by the vacuum pump; the temperature is maintained at from 27 to 30 degrees C., and the evaporation goes on with great rapidity and without any injury to the labile constituents of the serum. After the evaporation has been carried far enough, filtered air is allowed to enter the apparatus and the product removed. When necessary the whole apparatus can be sterilized by passing a stream of superheated steam through it.

A large Buchner's press, capable of exerting a pressure of 350 atmospheres, forms a part of the outfit. My attention was also drawn to a special kind of protective paint which has proved very serviceable. As is well known, it is extremely difficult in bacteriologic workrooms to find a covering that will stand steam sterilization. In the Vienna Institute a Dutch-French substance called "ripolin" has been found very satisfactory. It has often been subjected to temperatures of 100 degrees C., and while the original white color has turned a little yellow, blistering or scaling has not occurred. The ripolin is therefore far more durable than Japan black or enamel paint.

The stables for the horses are models of cleanliness and order. It is discouraging to an American to think of how expensive it would be to keep the horses and the stalls at home in the princely way they are cared for here. It is easily possible in Austria and Germany to obtain a skillful, conscientious *Dienerschaft* with a moderate money-outlay; in America the cost of the same skill and help is almost prohibitive. The newer stables are so constructed that they can be subdivided into small, completely isolated compartments: the desirability of this arrangement is obvious when one remembers the necessity of isolating newly purchased horses until they have been proven to be free from disease, the separate stabling of especially inoculated animals, and the quarantine of infected animals. The institute has its own blacksmith constantly in attendance. Regular weekly visits are made by a veterinary surgeon, and he may be called on at any time in case of need. Professor Paltauf told me that many of the best horses used in serum manufacture developed amyloid; they have hemorrhages into the liver, become icteric and die. Nearly a dozen fine animals have been lost from this cause.

In view of the disappointing results with antistreptococcus serum elsewhere, it was a surprise to me to find that the particular antistreptococcus sera prepared in Vienna under Paltauf's direction are highly valued. The opinion there seemed to be unanimously in favor of the use of Moser's serum in scarlet fever and of Paltauf's new serum against streptococcus infections of the puerperium. The difference between these sera and that of Marmorek is this: The Vienna sera are prepared by direct inoculations of streptococci of human origin, the serum for scarlet fever by immunization against streptococci from the throats of actual scarlatina patients, the serum against puerperal infection by immunization against streptococci taken directly from human puerperal infections. The Viennese believe that the passage of a race of streptococci through animals makes it incapable of yielding results such as they get by their direct inoculations from human cases. An assistant of Chrobak's at a meeting of the *Aerztliche Verein* which I attended, reported a series of puerperal infections treated with the new serum, in which the favorable results obtained were truly striking. Every case in the series in which the infection was due to streptococci alone, it is asserted, was cured; bacteriologic study of the few fatal cases demonstrated mixed infections with other bacteria.

THE AERZTLICHE VEREIN.

The *Aerztliche Verein*, by the way, is superbly housed in Vienna, and it says much for the enterprise, generosity, and artistic sense of the medical profession of that city that it should have provided itself with such a home. The reception-rooms, auditorium, and library are admirably arranged, and it is not the practical needs alone of the busy medical men that have been considered; the exquisite furnishings, the balustrades, the group of busts of famous Vienna medical men, give the place an air of elegance and ease. I could not help but wish that the profession of Chicago and of other great American cities might soon, with the help of the excellent organization which has recently been going on in connection with the medical societies, see its way clear to supply the money for and to build similarly practical and beautiful buildings. The advantages of a permanent headquarters for the profession in a large city are almost incalculable. The benefits derived extend in a whole series of directions—not the least important of which is the social. Such a professional home goes far to elevate the standards of a group of men; it is an influence which tends to dignify, ennoble and refine the profession. At the time of my visit the Vienna gynecologist, Professor Chrobak, was president of the *Verein*, and Professor Paltauf was its secretary.

(*To be continued.*)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Acute and Chronic Nephritis.

In considering the treatment of nephritis it must be ascertained whether or not the condition is an acute or a chronic process; and if acute the cause of involvement of the kidney structure must be taken into consideration in outlining the treatment. If the process is a chronic one the clinical findings should show whether the tubal system is diseased to the greater extent or the toxic substances have chiefly involved the vessels along with an increase in the connective tissue formation; in other words, whether the diseased condition is chiefly parenchymatous or interstitial. The prognosis, of course, depends on whether it is acute or chronic. Even in the acute form it is a difficult task to forecast the outcome of the patient, as all patients are not alike, so for this reason, according to Sir Dyce Duckworth in the *Clinical Jour.*, London, the prognosis of any form of nephritis should be guarded, as all patients have their peculiarities and temperaments, diatheses or qualities which are peculiar to them. One man has a tendency in one direction and another in another. There is no medicine for disease, as this author tersely states, but for individuals. We do not treat disease, but patients. Some patients are much more vulnerable than others, especially those of a strumous diathesis. This sort of individual is vulnerable at all points, and if such a patient suffers from an acute nephritis the prognosis is not good, and may end in chronic nephritis. On the other hand, if a man suffering from acute nephritis is of good constitution and can obey the instructions of his physician and not expose himself to wet and cold, and observes care in regard to his diet the prognosis for complete recovery is good. In the treatment of acute nephritis the author recommends a warm bed, bread and milk diet, barley water and whey. Of the latter the patient may take two or three pints a day. He may also have arrowroot, bread and butter, crackers, and if he is very hungry he may be allowed a small amount of mashed potato. These patients should not have meat nor strong food.

If the urine contains much blood, as may be the case in acute nephritis, dry cupping should be employed. If he is strong, the author recommends that wet cupping be employed, and that from 12 to 15 ounces of blood be taken from the loins in this way, as there is direct vascular connection between the skin of the loin and the interior of the kidney. Warm poultices over the loins are also of great service. Antimony in the form of the wine is very good given in one-half dram (2.00) doses, combined with spirits of nitrous ether, and a solution of ammonium acetate.

At the onset of the disease, a calomel purge should be given, two grains combined with half a dram (2.00) of compound jalap powder and afterward give two teaspoonfuls of a confection containing from a half to one dram of the compound jalap powder. This treatment, according to Duckworth, clears the renal tubes and diminishes the dropsy of the limbs and face. The patient should be confined to the hospital until all the albumin has disappeared from the urine. Iron is another preparation which is of value in these cases given in the form of ammonio-chlorid of iron or Basham's mixture, and may sometimes be combined with digitalis. Fuchsin is also recommended in doses of from one to ten grains (.06-.65) daily, as it sometimes decreases the amount of albumin, and at any rate does no harm if it does no good.

CHRONIC BRIGHT'S DISEASE.

Croftan, in the *Ill. Med. Jour.*, is of the opinion that Bright's disease is produced by circulating toxins and that the cardiovascular changes precede the kidney changes, as the result. The source of these toxins is two-fold, the gastrointestinal tract and the products of metabolism. The liver does not functionate properly, and as a result there is incomplete elaboration of the food before it reaches the circulation. The management of a case of Bright's disease according to Dr. Croftan should be considered under: 1, prophylactic treatment; 2, symptomatic, directed primarily against the development of cardiovascular changes, and secondarily, against the nephritic changes. 3. The treatment of the patient as a whole.

TO PREVENT INTESTINAL PUTREFACTION.

The diet should be properly guarded and the stomach washed out if necessary. The author recommends especially in this connection the use of zinc sulphocarbolate given in doses of one grain (.06) each at frequent intervals, together with about twenty grains (1.30) of bismuth daily. If the zinc preparation is used in sufficiently large doses it will prevent the black stools of the bismuth, as it checks putrefaction, and thus prevents the formation of bismuth sulphid. The color of the stools, therefore, should govern the amount of the zinc salt given daily and when this is obtained the urinary evidence of bowel putrefaction will disappear, as shown by the reduction of indican, etc. The bile salts are also of value in this same connection.

To strengthen the heart and to reduce the blood pressure, small doses of digitalis are recommended, one drop (.06) of the tincture, three times a day, is a sufficiently large dose to render the heart less susceptible to the disturbing stimulation of the circulating toxins. Large doses of digitalis are contraindicated. Nitroglycerin is the best remedy to reduce the blood pressure. As adjuvants to these preparations the hot bath, rest in a warm bed, life in a warm, dry climate and massage are of value.

The author believes in a liberal diet and one which will least irritate the kidney and at the same time adequately nourish the patient. He condemns the use of an exclusive milk diet, as it must be given in enormous quantities to properly nourish the patient. If administered in such large quantities it causes flooding of the heart and arteries with water, and thus overtaxes them. It is deficient in iron, and in time leads to deficient hemoglobin, and its use, sooner or later, becomes monotonous. The diet, therefore, should be a mixed one, and should contain a moderate amount of albumin.

The amount of water should be restricted; for the kidney, when it becomes diseased, stops eliminating water as the first thing, consequently the practice of "flushing out" the kidney should not be encouraged. The chief advantage of "sweating" is to get rid of the water.

WITHDRAWAL OF SODIUM CHLORID.

The nephritic kidney fails in properly eliminating sodium chlorid, and, therefore, favors edema, as the salt draws water from the tissue by the process of osmosis. Consequently, the ingestion of salt should be restricted. The surgical treatment of decapsulating or splitting the capsule is condemned by this author.

USE OF WATER IN NEPHRITIS.

Broadbent, in an abstract in *Amer. Med.*, states that the use of water depends on the time when it is taken. A glassful taken night and morning makes it effective as an eliminant. Specific growth of the urine is a more important factor in this disease than the amount of albumin. The tension of the pulse is an indication in the prognosis and treatment. When a high tensioned pulse is present he employs a mild mercurial aperient. According to his statement, the effect on the arterial tension of a single grain of a mercurial preparation with slight aperient action is much greater than repeated liquid motions induced by saline; and the renal elimination is increased by the mercurials. This author believes, also, that the starting point of chronic nephritis is some impurity in the blood which acts as an irritant, that by its elimination the renal trouble may be prevented, and that calomel aids in this elimination. Acting on the basis that uremic convulsions are caused by interference with the cortical circulation of the brain, he frequently advises venesection in this condition, but when there is only threatened uremia he orders free purgation by calomel, which usually causes the symptoms to disappear, and the tension of the pulse to be reduced.

SURGICAL TREATMENT.

An account is given in the same periodical of six cases of Bright's disease operated on by P. Rosenstein, and decapsulation of the kidney performed with negative results in every case. The author's conclusions are as follows: Decapsulation of the kidney in grave Bright's disease is a dangerous operation; a permanent cure has not been recorded in any case; improvements were noted, but in one of the improved cases the albumin and casts continued to exist, only the edema disappearing; in the other, headache and scotoma persisted.

INDICATIONS FOR TREATMENT.

The indications for treatment of chronic Bright's disease may be summed up as follows:

1. Early in the disease, to reduce the effect of the toxic substances, in the circulation, on the heart, arteries and kidney substance.
2. When the arterial tension becomes pronounced, to use means to reduce it.
3. Support the heart in well-advanced cases and promote elimination by bowels, skin and kidney.

In carrying out the first point the diet should be light, nonirritating, but not confined to a strictly milk diet. It should include well-cooked vegetables and a small amount of farinaceous and animal food; at the same time produce free elimination by the bowels. The arterial tension may be lessened by the use of calomel aperients and nitroglycerin. To check the progress of arteriosclerosis, potassium iodid is recommended by some authorities.

In the treatment of the anemia Weir-Mitchell recommends large doses of the tincture of ferric chlorid, from 30 to 60 minims (2.-4.) three times a day.

To support the heart early in the disease, caffein, spartein sulphate or moderate doses of strychnia are of value. Later in the disease, when the heart has become greatly enlarged as the result of its efforts to overcome the great tension in the arteries and vessels of the kidney, strophanthus and later digitalis are necessary. Strophanthus has the advantage over digitalis in that it is a good heart stimulant and does not contract the arteries as does digitalis, but it has the disadvantage, as stated by some authorities, of irritating the kidneys. The ordinary pill of calomel, squills and digitalis is a valuable combination in the treatment of this disease.

Hydrogen Dioxid in Dyspepsia.

Gallois and Courcoux of Paris have been studying the action of hydrogen dioxid on the digestion, experimenting on dogs with a Pawlow fistula. They claim that it has a pronounced effect in increasing the amount of gastric juice secreted and the proportion of free hydrochloric acid, thus secondarily enhancing the digestive power of the gastric juice, the proportion of pepsin being always higher than under other conditions. Clinical experience also showed that it arrested the vomiting of pregnancy, the effects not being apparent at once, but suggesting that it removed the cause. This seemed to be the case also in certain gastrointestinal troubles, especially hypopepsia and diarrhea. As it combines the properties of promoting digestion and disinfecting the bowels, it is thus especially indicated in hypopeptic dyspepsia with abnormal fermentation, and is particularly useful for infants. The results seem to be better the more recent the onset of the diarrhea. They add in their article in the *Gaz. Med. Belge*, Jan. 5, 1905, that a Russian physician, Novicor, prescribes it in dyspepsia in the formula of 6 gm. (ʒiss) of hydrogen dioxid at 12 volumes; 85 gm. (℥iiss) of distilled water, and 15 gm. (gr. iv) of syrup of orange flowers, giving a tablespoonful every two hours. They prefer to give it in milk or water, 10 drops of the dioxid to 100 gm. (qt. i) of milk, for infants; for adults, about a table spoonful in a quart of water, sipped as a beverage.

Atropin in Too Strong Solution.

Our attention has been called to an error. An abstract on "the treatment of purulent ophthalmia," Jan. 28, 1905, was quoted from *American Medicine*, Dec. 31, 1904, in which the statement is made that "a 4 per cent. solution of atropin can be used in the eye." It is probable that "4 grains to the ounce" is what was meant.

Medicolegal.

Duty of Injured Person.—The Supreme Court of Illinois says, in Chicago City Railway Company vs. Saxby, a personal injury case brought by the latter party, that it was the duty of such party to use reasonable care to effect a speedy and complete cure of the injury which she sustained by being thrown on the street from the company's car, and, to that end, she was required to exercise reasonable care to employ physicians of ordinary skill and experience to treat her, and other means to effect a cure of her injuries. She was not, however, required to employ the highest medical skill which might be found. All the law required was that she exercise such prudence as men and women of ordinary judgment, under like circumstances, would exercise in the choice of physicians and the means to be used to effect a recovery. She was not an insurer, bound to act at her peril; and if she exercised reasonable care in selecting her physicians, and in the employ of other means for her recovery, if her physicians made a mistake in the treatment applied by them to her, or by the means employed failed to effect a cure, then she might recover for the entire injury which she had sustained, as the law, if the injured person uses ordinary care in selecting a physician, and in the employment of other means to effect a cure, regards an injury resulting from the mistake of a physician, or from a failure of the means employed to effect a cure, as a part of the immediate and direct damages which naturally flow from the injury. If it be conceded that she had tuberculosis in her system, and that the same was developed in the knee by reason of the injury thereto, or from the treatment she received in the endeavors made to effect a cure of the fracture of the neck of the femur, it could not be said that the diseased condition of the knee was not a consequence which naturally and ordinarily might not follow as a result of the injury caused by the negligent act of the company.

Admissibility and Use of Skiagraphs.—The Supreme Court of Illinois says, in Chicago and Joliet Electric Railroad Company vs. Spence, a personal injury case brought by the latter party, that, as the case might be again heard, it was necessary it should consider the insistence that the trial court erred in permitting the introduction in evidence of a skiagraph, or *x*-ray photograph, of a portion of the chest and body of the party suing. The skiagraph was made by an expert, who testified he was an *x*-ray expert, and was regularly engaged in taking such photographs for physicians; that he took the negative from which the photograph was developed, and that he developed the photograph; and that it was an accurate and correct representation, etc. It was intended to show by the skiagraph that the party's heart had been displaced, that the walls of that organ had become thick, and that an abnormally heavy tissue had formed on the walls of his heart. The testimony of the *x*-ray expert who had taken the skiagraph tended to show the picture correctly represented the condition of the heart of the party. Photographs taken by the *x*-ray process are admissible in evidence after proper preliminary proof of their correctness and accuracy has been produced. And the Supreme Court thinks the testimony of the *x*-ray expert who made the skiagraph was sufficient to justify the court in ruling that the picture should be admitted in proof. Subsequently, when the company was introducing testimony in chief, another *x*-ray expert was produced in its behalf. This witness gave testimony tending to show that the skiagraph had not been properly taken, and expressed the opinion that the picture was of little or no value as a representation of the heart and other portions of the body of the party suing. But the court was not asked to exclude the picture because of this adverse criticism; nor does the Supreme Court think the motion to exclude should have been granted, had it been interposed. It further says that it was not error to allow the jury to take the skiagraph with them when they retired to consider their verdict. Paragraph 56 of the practice act authorizes "papers read in evidence, other than depositions," to "be carried from the bar by the jury." "Papers in evidence" clearly embrace photographs or skiagraphs offered and received in evidence. One of the definitions of the word "read" given by Mr. Webster is "to discover or understand by characters, marks, features, etc.; to gather the meaning of by inspection; to learn by observation." Photographs or skiagraphs produced in evidence on a trial before a jury are, within this definition, "read" in evidence, and may be taken by the jury on their treatment to consider and determine the cause. 12 *Ency. of Pl. and Pr.* 591, 592; Barker vs. Perry, 67 Iowa, 146.

Liability of City for Smallpox Expenses.—The Appellate Court of Indiana, Division No. 1, says, in City of Frankfort vs. Irvin, that the statute of that state makes the mayor and common council of an incorporated city, not having a board of health by statute or ordinance, a board of health for the city. The record in this case contained evidence from which it could be said that there was some danger of an epidemic of smallpox in the city. At a special meeting of the common council, called to consider the situation, a special committee was appointed, consisting of three councilmen, one of whom was designated as chairman, and to this committee was referred the matter of looking after the smallpox in the city. It appeared that soon afterward there were a number of cases of smallpox in the city, and that most of the acts done with reference thereto were done by the chairman of this committee. It did not appear that this chairman did anything that the city council, acting as a board of health, might not have done itself. It did not appear what authority was given this committee, or its chairman, in the matter; but it did appear that the city ratified a part of the work of this committee by afterward paying bills contracted in relation to the management of the pesthouse. The court thinks it appeared from the evidence that what this committee and its chairman did was one entire transaction, which should be repudiated or ratified as a whole. It says that the statute makes it the duty of the board of health to take prompt action in all cases to arrest the spread of contagious and infectious diseases. It is left to the discretion of the board as to how this may best be done. What power the board has, as against the individual, to confine a person afflicted with smallpox in a pesthouse, the court says that it had nothing to do with in this case. The board took such measures as it thought best to protect the health of the people at large, and was liable for such expenses as were properly attributable to measures taken for the prevention of the spread of the disease. And the court thinks it can be said that the employment of a nurse to care for a person afflicted with smallpox is an essential precautionary measure to prevent the spread of the disease. Under the circumstances disclosed by the record, the common council, acting as a board of health, could have legally contracted with a party for his services as a nurse. Such a contract made through the agency of a committee or other authorized person is no less binding than if made by the city itself. The extent of the authority of the person or persons empowered to act must necessarily depend to a large extent on the conditions existing in the particular case. It was immaterial that the pesthouse was located outside the city limits. The fact that it is the duty of the overseer of the poor, and not of the city, to make provision for poor and indigent persons, does not relieve the city from liability for necessary expenses incurred by it in preventing the spread of the disease. Nor does it prevent the city from legally contracting to pay the services of a person who assists in the burial of a person who has died of the disease while under the control and charge of the city's health board. The proper and prompt burial of a person who has died of smallpox may be as necessary in preventing the spread of the disease as the proper care of a person while afflicted with the disease.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 4.

1 History and Development of Surgery During the Past Century. (Continued.) Frederic S. Dennis, New York City.
2 *Some Further Experiments on Rectal Alimentation. David L. Edsall and Caspar W. Miller, Philadelphia.
3 *Diagnosis of Tuberculous Cavities in the Lung. Herman B. Allyn, Philadelphia.
4 *Diet After the Age of One Year. J. P. Crozer Griffith, Philadelphia.
5 Acute Postoperative Thyroidism: Report of a Case; Recovery. S. Edward Sanderson, Detroit.
6 Fibrolipomatous Tumor of the Pharynx and Larynx. E. Fletcher Ingals, Chicago.

2. **Rectal *Alimentation*.**—Edsall and Miller have continued their experiments in the matter of rectal feeding, especially in the direction of finding some method of artificially preparing fats so that a greater degree of absorption may be secured. With this purpose in view they carried out experiments on two different lines: 1. They tried to provide their fats in the form of a soap that would be easily prepared and administered, and to investigate its absorption when given by rectum. 2. Search was made for a good emulsion of fat that would remain emulsified after its introduction into the bowel. Their results were such as to convince them that it is impossible by any methods now available to administer successfully sufficient soap to make it of decided nutritive value. They were unable, after repeated attempts, to find any method of making a soap that could be readily prepared for clinical purposes or would be unirritating. Their results with an artificial fat emulsion, a mixture of alkali albumin and cod-liver oil, were somewhat more encouraging. They believe that further study may determine that the clinical value of nutritive enemas may be increased, though it is still a question whether it ever will be possible to maintain nutrition in this way. They believe that the functions at present served in most cases by nutritive enemas are: first and most important, to provide fluids and various inorganic salts for the tissues; 2, to provide, perhaps, from a third to a sixth of the requisite amount of food; 3, to prevent the anxiety of friends and patients that would be produced by giving no food.

3. **Tuberculous Cavities in the Lung.**—Allyn insists on the importance of a thorough examination and following an orderly progression in developing physical signs in attempting to arrive at a diagnosis of tuberculous cavities in the lung. The most trustworthy signs are to be found in deficient expansion and flattening of the chest wall over the cavity; in a percussion note which is often a high-pitched tympany, especially if percussion is made with the mouth open, but which may be only a muffled sound or a dull or flat sound; in pectoriloquy, particularly the whispering variety; in breath sounds which are cavernous, tubulo-cavernous, tubulo-amorphic or amorphic; and in a multiplicity of râles, chiefly moist râles, which, after coughing, may have a resonating quality.

4. **Diet After the Age of One Year.**—Griffith advises that the infant should be weaned at from the age of ten to twelve months. When possible this should be accomplished gradually, only one bottle of food being given at first, and this of a strength less than mother's milk, thus enabling the child to accustom itself to the new food. The number of bottles and the strength of the mixture are increased gradually until at the age of a year the food should consist of milk slightly diluted. The child should be weighed systematically twice a week during the weaning, in order that no undiscovered loss of weight takes place. After the child has been weaned entirely and has become accustomed to the new artificial food, it is well to add to the food a concentrated amylaceous substance such as barley jelly or arrowroot jelly. The proportion of two rounded tablespoonfuls of barley flour or arrowroot to a pint of water, cooked in a double boiler for ten or fifteen minutes, makes the proper strength. This may be added to the food in the proportion first of one and later of several teaspoonfuls to each bottle, the addition to be made while the cereal substance is still hot. The number of feedings during this period has been reduced from three hours to three and a half or four hours, depending on the requirements and habits of the child. The amount of nourishment should be from 8 to 10 ounces at a feeding. After the first year Griffith advises the following diet:

DIET FROM 1 YEAR TO 18 MONTHS.

Breakfast (6 to 7 a. m.).—1. A glass of milk with stale bread broken in it, or one of the numerous good breakfast foods on the market. 2. Oatmeal, arrowroot, wheaten grits, farina, hominy grits, etc., made into a porridge and well cooked, and with the milk mixture in use poured over it. 3. A soft-boiled or poached egg with broken bread in it, and a glass of milk.

Second Meal (10 a. m.).—A glass of milk.

Dinner (1:30 to 2 p. m.).—1. Bread moistened with dish gravy (no fat) beef tea or beef juice; a glass of milk. 2. Rice or grits moistened in the same way; a glass of milk. 3. A soft-boiled egg and stale bread thinly buttered; a glass of milk. Rice, sago or tapioca pudding or junket, in small quantities as dessert with any of these diets.

Fourth Meal (5 p. m.).—A glass of milk or some bread and milk.

Fifth Meal (9 to 10 p. m.).—A glass of milk.

Diet from 18 Months to 2 Years.

Breakfast (7 a. m.).—1. A glass of milk with a slice of bread and butter or a soda, graham, oatmeal or similar unsweetened biscuit. 2. A soft-boiled egg with bread and butter and a glass of milk. 3. Porridge, as described in the previous list.

Second Meal (10 a. m.).—1. Bread broken in milk. 2. Bread and butter or a soda or other biscuit with a glass of milk.

Dinner (2 p. m.).—1. Boiled rice or a baked potato, mashed and moistened with dish gravy or beef juice; a glass of milk. 2. Mutton or chicken broth with barley rice in it; some bread and butter, and some sago or rice pudding made with milk. 3. A small portion of minced white meat of chicken or turkey, or rare roast beef, beefsteak, lamb, mutton or fish; bread and butter; a glass of milk.

Fourth meal (5 p. m.).—1. Bread and milk. 2. Bread and butter and a glass of milk.

Diet from 2 to 3 Years.

Breakfast (7 to 8 a. m.).—1. A small portion of beefsteak, with oatmeal, hominy grits, wheaten grits, cornmeal or other cereal porridge with plenty of milk. 2. A soft-boiled egg, bread and butter and a glass of milk.

Second Meal (11 a. m.).—1. A glass of milk with bread and butter or with a soda or other biscuit. 2. Bread and milk. 3. Chicken or mutton broth.

Dinner (2 p. m.).—Roasted fowl, mutton or beef cut fine; mashed baked potato with butter or dish gravy on it; bread and butter. As dessert, tapioca, sago or rice pudding, junket or a small quantity of raspberries, peaches, grapes without seeds, orange juice or of stewed apples or prunes.

Supper (6 p. m.).—1. Bread and butter. 2. Milk with soda or similar biscuit or with bread and butter.

Diet After Three Years.

FOODS PERMITTED.

Meats.—Broiled beefsteak, lamb chops and chicken; broiled liver; roasted or boiled beef, mutton, lamb, chicken and turkey; broiled or boiled fish; raw or stewed oysters.

Eggs.—Soft-boiled, poached, scrambled, omelet.

Cereals.—Light and not too fresh wheaten and graham bread, toast, zwieback; plain unsweetened biscuit, as oatmeal, graham, soda, water, etc.; hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni, etc.

Soups.—Plain soup and broth of nearly any kind.

Vegetables.—White potatoes, boiled onions, spinach, peas, asparagus except the hard parts, string and other beans, salsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago, etc.

Fruits.—Nearly all if stewed and sweetened; of raw fruits, peaches are one of the best; pears, well-ripened and fresh raspberries, strawberries, blackberries, grapes without the skin and seeds, oranges.

Desserts.—Light puddings, as rice pudding without raisins, bread puddings, etc., plain custards, wine jelly, ice cream, junket.

FOODS TO BE TAKEN WITH CAUTION.

Kidney, muffins, hot rolls, sweet potatoes, baked beans, squash, turnips, parsnips, carrots, egg-plant, stewed tomatoes, green corn, cherries, plums, apples, huckleberries, gooseberries, currants.

FOODS TO BE AVOIDED.

Fried food of any kind; griddle cakes; pork: sausage, highly-seasoned food; pastry; all heavy, doughy or very sweet puddings; unripe, sour or wilted fruit; bananas, pineapples, cucumbers, raw celery, raw tomatoes, cabbage, cauliflower, nuts, candies, preserved fruits, jams, tea, coffee, alcoholic beverages.

It is important that milk remains the chief article of diet throughout early childhood. Broths are serviceable as food only through the cereal addition with which they are thickened. Although rashness on the part of the mother in experiments on new foods is to be condemned, too great caution resulting in too long a continuance with insufficient food is equally harmful. Children should not be fed too frequently nor should they be given too much starch, as that is a frequent cause of illness. The age and need of the child rather than the teeth should be the guide in determining when the giving of meat may be commenced. No candies, cakes or other such articles should be given. No food should be allowed between meals, although if there clearly be real hunger a small glass of milk may be given at times, but even this is to be discouraged as a custom. During very hot weather the diet should be reduced greatly in variety and in amount. The child of 2 years had better be put temporarily on the diet of a child of one year. Illness may often be avoided by following this plan.

New York Medical Journal.

February 4.

7 *Observations on the Diagnosis of Renal Calculus, with Special Reference to Diagnosis by Means of the X-rays. Alexander B. Johnson, New York.
8 Binasal Hemianopsia; Case of Neuritic Optic Atrophy with Binasal Hemianopic Fields. William T. Shoemaker, Philadelphia.
9 *Insects; the Rôle They Play in the Transmission of Disease. Henry Albert, Iowa City.
10 Gonorrhea in Its Female Pelvic Relations. Ely Van De Warker, Syracuse.
11 *Practical Value of Litten's "Diaphragm Phenomenon" in Diagnosis. William N. Berkeley, New York.
12 Report of a Case of Cerebrospinal Meningitis, Lumbar Puncture, Purulent Cerebrospinal Fluid, Perfect Recovery. Sigmund A. Agatston, New York.
13 Dry Gangrene Following the Application of Carbolic Acid Dressing Covered with Oiled Silk. Vertner Kenerson, Buffalo.
14 Cause of Seasickness. Charles W. Hogg.

7. **Diagnosis of Renal Calculus.**—Johnson discusses the clinical history of renal calculus, especially with reference to diagnosis. He details his experiences in 125 cases with the *x*-ray used as a diagnostic agent and has found that a positive diagnosis of kidney stone by the *x*-rays is reliable and of great practical value. The same may be said of a negative diagnosis, up to a certain limit. If pictures of the proper quality are obtained, calculi of oxalate of lime and phosphates can be excluded. Pure uric acid calculi can not. Failures are due to: 1, The great thickness of the body of the patient; 2, imperfect working of electrical apparatus; 3, improper handling of the photographic plate in the dark room, and 4, imperfect photographic plates. To insure success in the radiography of kidney stones the following conditions must be fulfilled: The electrical current used to excite the tube must be of high voltage and of considerable amperage. The best coils and large static machines answer this requirement perfectly. The *x*-ray tube used must permit the passage of such a current continuously for several minutes without much change in internal resistance, although the resistance or vacuum of the tube is relatively low at the start. A tube of relatively low resistance produces rays showing on the photographic plate slighter differences of density in the structures through which the rays are passed, but, as the result of the passage through such a tube of a powerful current the tube usually becomes heated with a further fall of resistance and the production of rays of inadequate penetrative power. A tube of high resistance tends to preserve its vacuum resistance better, but the *x*-rays given off from a tube, the resistance of which is very high, possess the penetrative power to a high degree; they penetrate all the structures of the body more nearly in an equal manner and thus produce radiographs showing but little contrast betwen tissues of different densities. His best pictures have been taken with the Wehnelt electrolytic interrupter, with rather a heavy platinum electrode having a considerable amount of platinum exposed in the acid, thereby permitting the use of a current of considerable amperage and relatively slow interruptions. The exposures for large, stout people have varied from ten to fifteen minutes, with anticathode about thirty inches from the photographic plate. For thin individuals these exposures have been shortened one-half.

9. **Insects in Transmission of Disease.**—Albert discusses the diseases transmitted by insects: the insects responsible for such transmission: the manner in which such transmission may occur, and the agents that may be used to eliminate the insect factor in the transmission of disease.

11. **Litten's Diaphragm Phenomenon.**—Berkeley suggests the term "phrenic wave" for this phenomenon, which is the visible descending and ascending wave associated with the respiratory movements of the diaphragm in the lower zone of the thorax. To students in physiology the phrenic wave is useful as a demonstration of the respiratory movements of the diaphragm. When unbroken and over three inches in extent on both sides it is a good indication of healthy lungs, and should be incorporated as such into life insurance examinations. It is an easy and practical substitute in many cases for the expensive and laborious *x*-ray examination of the movements of the diaphragm, when such an examination is desired. When diminished markedly on both sides, low down in the thorax, and more marked behind than in front, it is an excellent sign of asthma and emphysema. When absent or nearly absent, on one side only, it is a useful confirmatory sign of a variety

of conditions which may be suspected from other signs, particularly pleurisy and early tuberculosis. When absent on both sides no conclusion of any kind is really justifiable, unless the patient has been known to have had good waves previously.

Medical News, New York.

February 4.

15 Presidential Address. Charles L. Dana, New York.
16 *Partially Afebrile Estivo-Autumnal Malarial Infection, Having Its Origin in New York City. J. L. Pomeroy, New York.
17 Summer Infant Mortality. L. C. Ager, Brooklyn.
18 Serum Diagnosis of Typhoid by Means of Ficker's Method. J. H. Von Tiling, Poughkeepsie, N. Y.
19 Inflammatory Stricture of the Rectum. J. M. Frankenburger, Kansas City.
20 *Case of So-called Traumatic Asphyxia. R. Winslow, Baltimore.

16. **Afebrile Estivo-Autumnal Malaria.**—Pomeroy reports the case of a man who contracted estivo-autumnal malaria in New York City, not having been outside of the city in fifteen years. His regular work was unloading vessels from all parts of the world. During the fall of 1900 he began to sufferr from chills and sweats. The attack lasted about three weeks, during which time he was bed-ridden and his skin became yellow. Recovery was slow, and from time to time he suffered from chills followed by sweats. Loss in weight became quite apparent. The affection was pronounced malaria and his physician gave him some pills, after taking which he invariably improved. Recently the chills and sweats recurred with renewed severity. While they were very irregular, they occurred some time between 5 a. m. and 9 p. m. Shortly after entering the hospital he had a violent chill, followed by a profuse sweat, but his temperature was normal, both before and after chill, not going above 99. These chills proved very irregular, appearing often without being followed by a definite sweat, and, again, the reverse would be the case. Examination of the blood showed the presence of extracellular crescentic and ovoid bodies, the latter preponderating during the afternoon and the former during the forenoon. The patient was placed on quinin sulphate in perforated capsules, 15 grains every four hours, and one-half ounce of Warburg's tincture before meals to stimulate his appetite. Saline catharsis was used to relieve constipation and to increase elimination. Under this treatment, recovery was prompt. The points of interest in the case are: 1. An estivo-autumnal infection having its origin in New York City. 2. Chills and sweats without temperature—the latter appearing only when quinin had been administered and then not rising above 100.2.

20. **Traumatic Asphyxia.**—The history of Winslow's case is as follows: An elevator conductor had occasion to get on top of a car and told an assistant to lower it, but by mistake the elevator was raised and the man was caught between the ceiling and the top of the car. He was forcibly bent down so that he sat on his heels, while his head was forced down to the roof of the car. He was kept in this position for some moments, during which time he felt as if his head and chest would burst and he could not breathe. He did not lose consciousness, but suffered considerable pain. After his release he had bloody expectoration and some epistaxis. Examination of the chest revealed fractures of the fourth, fifth and sixth ribs on the left side, with some emphysematous infiltration of the subcutaneous connective tissues. There was some cough. A contusion was seen on the right ear. There was no blood in the urine nor was he unable to empty the bladder. A lacerated wound was found around the rectum, which had evidently been made by the heel of his shoe as he was doubled up by the pressure. Sight and hearing were not impaired. The pupils were equal and responded to light. There was an extensive extravasation of blood under each conjunctiva and a bluish discoloration of the head, face and neck to the level of the cricoid cartilage. It was punctiform in character, like the eruption of scarlet fever, but blue instead of red. It did not disappear nor change materially on pressure. The temperature rose to 100.8, dropping to normal in three days. The pulse rate was 120 and gradually dropped to 80. The color of the skin gradually faded but had not entirely disappeared when he was discharged, on the twelfth day. No special treatment was instituted except an ice bag to the chest and, subsequently, adhesive strips, with enough morphin to relieve the pain. Microscopic examination of a piece of skin removed from the side of the neck showed practically no alterations. The capillaries here and there were more or less distended with blood, but no blood was found anywhere in the tissues outside of the blood vessels.

Medical Record, New York.

February 4.

21 *Sanitary Conditions as Encountered in Cuba and Panama, and What Is Being Done to Render the Canal Zone Healthy. William C. Gorgas, U. S. A.
22 *Intramuscular Hemorrhage from Muscular Action. Andrew H. Smith, New York.
23 Review of Some Recent Papers on the Surgical Treatment of Prostatic Hypertrophy. E. G. Ballenger, Atlanta, Ga.
24 *Diagnosis of Renal and Ureteral Calculi. H. A. Fowler, Washington, D. C.
25 *Growth of Bone in the Tonsil. William W. Carter, New York.
26 *Report of Three Cases of Intestinal Anastomosis by the Connell Suture. H. H. Sinclair, Walkerton, Ont.

21. **Sanitary Conditions in Cuba and Panama.**—Gorgas discusses the progress and results of sanitary measures in Cuba, particularly with reference to the extermination of yellow fever, and outlines the steps that will be taken to render the Isthmian Canal zone as free from malaria and yellow fever as is Havana.

22. **Intramuscular Hemorrhage from Muscular Action.**—Smith emphasizes the distinction to be drawn between those cases in which the escape of blood within the intact sheath of a muscle is the important factor and those in which laceration of muscle and sheath plays the principal part. He says the former variety may give rise to greater immediate suffering and to more lasting impairment of function than the latter. Rupture of individual muscle fibrillæ, the result of a violent contraction, is comparatively common, even in a healthy muscle. Almost any muscle may be involved, but those that act through tendon of achilles suffer most because of the greater strain to which they are subjected. Other causes of rupture are excessive stimulation, irregular contraction and inco-ordination of the muscle fibers. The amount of hemorrhage depends more on the freedom with which the effused blood can escape into the neighboring tissues than on the size of the vessel torn across. The degree of pain felt by the patient depends on the amount of pressure or tension within the blood sac. Smith cites two cases of hemorrhage into the calf muscles due to muscular action in which a limited amount of blood was effused into a confined space, with the result of causing much pain and protracted disability. In two other cases cited the muscle was torn completely across, the calf muscles in one and the sterno-cleidomastoid in the other, but the suffering was comparatively slight and the disability of short duration.

24. **Diagnosis of Renal and Ureteral Calculi.**—Fowler emphasizes the importance of early diagnosis in these cases because by early surgical interference we can save the kidney and also procure relief for the patient. Moreover, we avoid alarming and distressing complications and a final resort to more serious operations. In the early stages, nephrolithotomy offers a perfect cure, is not dangerous, and is attended by a very low mortality.

25. **Growth of Bone in Tonsil.**—Carter narrates a case, female, aged 22, in which one tonsil was found to contain areas of hyalin cartilage undergoing osseous transformation, and other areas in which bone was being formed directly from fibrous tissue; while in still others the transitional stages from fibrous tissue through cartilage to bone were observed. Carter expresses the belief that in these cases the bone originates from metaplastic changes in connective tissue and not from the branchial arch, but since bone does not develop in every tonsil that has been subject to proliferative connective tisue changes, we must assume, when it does occur, some local predisposing tendency to its formation.

26. **Experience with the Connell Suture.**—Sinclair [illegible]

three cases in which he made use of the Connell suture. The first was a case of strangulated inguinal hernia; the second, gangrene, the result of a volvulus; the third, a retrocolic gastrojejunostomy for perforated gastric ulcer. The three cases made uneventful recoveries.

St. Louis Medical Review.

January 28.

27 Malformation of the Bladder. Herman Tuholske, St. Louis.
28 Case of Potassium Iodid Eruption. M. J. Epstein, St. Louis.
29 Hydatid Cysts of the Liver. (Continued.) Neill MacPhatter, New York.

Boston Medical and Surgical Journal.

February 2.

30 Relation of the Epileptic to the Community. William N. Bullard.
31 *State's Relation to the Epileptic. Owen Copp, Boston.
32 *Tuberculosis Problem and Some Suggestions in Dealing with It. Edward O. Otis, Boston.
33 *Treatment of Hemorrhoids by the General Practitioner. T. Chittenden Hill, Boston.
34 Consumption and Its Borderland, Public and Professional Concern. Paul Paquin.

31. **State's Relation to the Epileptic.**—Copp discusses the obligation of the state to epileptics and the protection it requires for its own welfare. In addition to legislative efforts, he advises that the state should provide the following:

> 1. A center for study, research and teaching in relation to epilepsy, well officered and equipped, to afford scientific treatment to patients both within its care and at home, through advice to indigent parents and friends who may wish to avail themselves of the aid, and, in conjunction therewith, schools for elementary education, manual training and persistent drilling into habits of doing simple, everyday acts of helpfulness to the family or the institution.
> 2. Colonies, independent or associated with such a center, which the adult epileptic, thus trained, may enter and find a home in place of isolation in society, and industrial opportunities graduated to his capabilities under conditions suited to his peculiarities and to the utilization of his productive energy.
> 3. Custodial provision for the infirm, intractable and insane epileptic.

The trend of this policy is toward segregation of epileptics, both in the classification for public wards and apart from the general community. Its successful issue would afford the chief check on hereditary transmission of the degenerative taint.

32. **Tuberculosis Problem.**—Otis says that in order to stamp out tuberculosis it is essential, in addition to the measures usually followed, to promote conditions of wholesome living, to teach the people the elements of personal and house hygiene, and to teach what wholesome living is and how to obtain it.

33. **Treatment of Hemorrhoids.**—Hill says that the great majority of cases of hemorrhoids, of whatever form, can be treated radically, satisfactorily and with little discomfort to the patient at the physician's office. The after-treatment of these cases requires careful attention. The bowels, as a rule, should be confined for forty-eight hours. On the second night half a dram of fluid extract of cascara should be given, and sufficient thereafter to secure daily evacuations. The anal region should be kept scrupulously clean, and a pad of cotton-wool wrung out of bichlorid of mercury solution, 1 to 1,000, placed over the anal orifice is more acceptable to most persons than a dry dressing. Good drainage must be secured and the necessary topical applications made to induce rapid healing. Should there be much pain or soreness (which is rarely the case), it can be relieved by anodyne suppositories, morphia, cocain, or combinations of both. An irritable or hypertrophied external sphincter is occasionally the cause of pain after these operations. This complication can be avoided by a complete division of both layers of the muscle, a painless operation, under local anesthesia. On no account should the internal sphincter be damaged, as incontinence might follow.

Lancet-Clinic, Cincinnati.

January 28.

35 Systematic Examination of Sick Children. James W Rowe, Cincinnati.
36 Appendicitis. Horace J. Whitacre, Cincinnati.

February 4.

37 Pain in the Back—A Clinical Lecture. F. W. Langdon, Cincinnati.
38 *Typhoid Fever and Appendicitis. John C. Oliver, Cincinnati.
39 *Macular Atrophy of the Skin. Edw. H. Shields, Cincinnati.

38. See abstract in THE JOURNAL of January 7, p. 60.

39. Ibid., vol. xliii, p. 1251.

The Laryngoscope, St. Louis.

January.

40 *Throat Complications in Typhoid. F. J. Quinlan, New York
41 Acute Suppurative Otitis Media Complicated by Double Pneumonia, Septic Thrombosis of Jugular Bulb; General Systemic Infection. E. B. Dench, New York.
42 Difficulties in Diagnosis of Intracranial Extension of Suppurative Otitis in the Presence of a Pulmonary Complication. A. B. Duel, New York.
43 Bezold's Mastoiditis; Report of Three Cases. S. Oppenheimer, New York.

40. **Throat Complications in Typhoid.**—Quinlan calls attention to throat complications of typhoid, such as pharyngitis, laryngitis and tonsillitis. The clinical history of these affections is described at great length and the literature on the subject is reviewed carefully. Quinlan asks that more attention be given these complications by the general practitioner, as they are of greater importance than is usually believed. A laryngitis occurring in the course of typhoid always modifies the prognosis. Therefore, any symptom pointing to an involvement of the throat should be investigated thoroughly and proper treatment instituted.

Annals of Ophthalmology, St. Louis.

January.

44 Direct Action of Drugs on the Extrinsic Muscles of the Eyeball. C. A. Oliver and D. M. Hoyt, Philadelphia.
45 Posterior Cortical Cataract of Traumatic Origin. C. Koller, New York.
46 Contribution to the Technic of May's Symblepharon Operation. A. Natanson, Jr., Moscow, Russia.
47 School Influence on the Eye and Spinal Column. J. Liebreich, Paris.
48 John Taylor, Charlatan Oculist. M. Frank, Chicago.
49 Treatment of Infection After Cataract Operation. A. Bourgeois, Rheim, Germany.
50 Corneal Laceration with Cilia in Anterior Chamber; Pupillary Occlusion; Four Operations; Recovery. A. J. Bedell, Albany, N. Y.
51 *Operation for Entropion of the Lower Eyelid. J. M. Ball, St. Louis.
52 Four Cases of Sympathectomy. F. L. Henderson, St. Louis.
53 Common Misconception of Astigmic Retraction. W. N. Souter, Washington.
54 Rheumatism Tenonitis. F. C. Heath, Indianapolis.

51. **Operation for Entropion.**—Hall describes an operation devised by him which he says is efficient for the relief of trichiasis and of organic *entropion* of the lower eyelid, and does not require excision of any tissue. The procedure consists of three steps: 1. Incision of the conjunctiva and tarsal plate.—The writer's, or preferably Ewing's, modification of Desmarres' *pince anneau* is applied, the base plate being in contact with the skin of the lid. An incision parallel with the lid margin is made at a distance of two millimeters from the margin, extending from a point one or two millimeters external to the lower punctum lachrymalis to a point one or two millimeters from the external canthus. The incision is made with a cataract knife or with a small scalpel, and includes the conjunctiva and entire depth of the tarsus. The cut is made obliquely from behind downward and forward. 2. Exposure of the lower margin of the tarsal plate.—The lid clamp is released and reversed, that is, the base plate is applied to the conjunctival surface. An incision is made along the whole extent of the lower margin of the tarsal plate. The lower border of the tarsus is then exposed by dissection and retraction of the tissues. 3. The placing of the sutures.—Three or four silk (English black, No. 1) sutures are then passed. The needle is entered from the conjunctival surface of the first wound and is passed obliquely from behind upward and forward, the upper part of the lid being held firmly with ordinary fixation forceps. The needle is then made to bite in the lower margin of the tarsus, and, lastly, it is passed through the lower lip of the cutaneous wound. The sutures are then tied. The effect of tying them is to produce a *renversement* of the upper segment of the lid, the cilia being directed forward, or forward and downward. The gaping wound in the tarsus heals by granulation. The sutures are removed at the end of four days.

31 Abdominal Hysterectomy for Carcinoma with Exhibition of a Case Operated on July 28, 1878. W. A. Freund.

December.

32 *Dietetic Treatment of Chronic Diffuse Intestinal Catarrh. T. H. Rosenheim.
33 **Therapy of Stomach Affections.* H. Leo.
34 Morphin in Heart Disease. H. Rosin.
35 Sodium Chlorid and Nephritis. H. Strauss.
36 A New Pharmacodynamic Method for Determining the Value of Diuretics. P. F. Richter.
37 Significance of Pain in the Back. M. Mosse.
38 *Alcoholic Cirrhosis of Liver in Eight-year-old Child; Talma Operation. R. Milchner.

28. **Natural Gastric Juice as a Therapeutic Agent.**—Rollin has made use of the gastric juice obtained from dogs in the treatment of stomach affections during the past three years. He obtained the gastric juice directly from Pawlow and repeated tests confirmed its efficiency as a digestant. With the exception of one patient, a woman, who complained that the gastric juice of a dog was too sour and who preferred the gastric juice of the pig, none of the patients objected to the taste of the fluid, even after partaking of it for several years. The 12 cases treated consisted of nervous dyspepsias, subacid and anacid gastric catarrhs. The average dose was 200 c.c. a day taken with the noon and evening meals. On several occasions, two of his patients had to substitute dilute hydrochloric acid for the gastric juice, the supply having given out, and they both stated emphatically that the therapeutic effect of the acid was not as great as that of the gastric juice. Rollin obtained equally good results from the gastric juice in all the cases treated and unhesitatingly subscribes to Pawlow's statement that the natural gastric juice of the dog is the digitalis of the stomach. The history of 10 cases is given in detail. Results were good in all.

32. **Diet in Chronic Diffuse Intestinal Catarrh.**—Rosenheim states that it is impossible to lay down a diet for all cases which is non-irritating and easily assimilable. So far as milk is concerned, although it oftentimes proves exceedingly useful in these cases when given in small quantities, yet, for the majority of patients, it had best not be given. Experience has shown him that if the small bowel is put at rest for a short time by giving some mild diet, other than milk, it is possible to give milk later, and with good result. In many cases, even very mild ones, it is advisable to abstain from milk for months. Rosenheim goes so far as to forbid using milk in the preparation of foods and drinks until the bowel has become perfectly quiet. During the first few weeks of the dieting of all his patients, milk never enters into the bill of fare. Disease of the large bowel, even though it may be advanced, does not contraindicate the use of milk; on the contrary, milk, specially when it is the only food taken, is exceedingly useful. In achylia gastrica and in hyperchlorhydria, milk, as a diet, occupies first place, but it should be omitted when there is an associated catarrh of the small bowel. In the majority of these cases, it is well to begin by prescribing a diet containing 120 or more grams of egg albumin, 200 to 250 grams carbohydrate; 40 to 50 grams fat and consisting of meat, fish, eggs, some sugar, wheat bread or zweibach, rice, farina, sago, macaroni, bouillon, broths, butter, tea, and red wine. Meat ought to form a considerable part of the diet in the majority of these cases. Although the small bowel, even when diseased, is well able to digest albumins, yet care must be taken not to give this in too large amounts, so as not to overtax the digestive capacity of the bowel. Changes in the diet must be made carefully and slowly, watching for the slightest manifestation of disturbances due to the change in diet. In those cases in which a neurosis is an etiologic factor, proper hygienic treatment must be given in addition to the dietetic.

33. **Therapy of Stomach Affections.**—Leo cites a case of gastroxynsis in which all the usual therapeutic measures failed to give any relief. Finally, he resorted to the use of cold douches for two or three minutes, the patient going to bed immediately afterward. This controlled the pain and vomiting for about two hours, and inasmuch as the man took four or five of these cold douches every day he experienced considerable relief. The second case cited is one of very severe gastralgia accompanying a chronic gastritis with subacidity. Lavage with solution of silver nitrate and other medicinal agents, including hydrochloric acid by mouth, proved futile. A mixture of pepsin and hydrochloric acid (10 parts of each in 50 of distilled water) yielded immediate relief and the patient is improving steadily. Leo calls attention to the anesthetic effect of this mixture, a most unusual one, due probably to its peptonizing action.

38. **Talma Operation in Eight-Year-Old Child.**—Milchner cites the case of a girl, 8 years old, suffering from an atrophic alcoholic cirrhosis of the liver, slight jaundice, extreme grave anemia and ascites. Medicinal treatment proving futile, he decided to do a Talma operation. The omentum was very thin and anemic, and showed no adhesions. The phlebectasia so common in liver cirrhosis was absent. An omentopexy did not relieve the ascites. Nevertheless the veins of the chest and abdomen soon became considerably dilated, and a typical caput medusæ formed. Milchner calls special attention to the absence of venous dilatation in the omentum as a probable cause of failure in producing the desired results by performing a Talma operation. On the other hand, his case proves that the success of the Talma operation is not dependent entirely on dilatation of the omental veins, and that the ascites accompanying cirrhosis of the liver is not always the result of congestion in the portal system.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 252.

39 (XLIII, No. 2.) *Ueber embolische Lungen-Affektionen nach Bauch-Operationen (after laparotomies). Gebele.
40 *Ueber complizierte Frakturen der Extremitäten. O. Klauber.
41 Zur Kasuistik der Knochenbrüche (benefits of hospital treatment of fractures). R. Klaus.
42 Kropf-Operationen am städtischen Hospital in Schw Gmund (108 goiter operations). H. Closs.
43 *Ueber ein differential-diagnostisches Symptom zwischen Hernia cruralis und Varix der Vena saphena magna. J. Hertle.
44 Slowly Absorbed Suture Material.—Nahtmaterial mit verzögerter Resorption. H. Miyake. See The Journal, XLIII, page 1507.
45 (No. 3.) Die Behandlung des Carcinoms des Pharynx und der Tonsillen. K. Lindenborn.
46 Zur Operation der Aneurysmen insbes. der Total Exstirpation. R. Kolb.
47 Versorgung des Bruch-Sackes bei der Radikal-Operation von Leistenhernien (inguinal hernia). Bunge.
48 Muskel-Sequester nach Pneumokokken-Infektion. Paetzold
49 Ueber ausgedehnte Mesenterial-Abreissungen bei Kontusion des Abdomens (lacerations of mesentery). R. Neumann.
50 *Klinische Beiträge zur *Kenntnis der Pankreas-Nekrose.* C. Boehm.
51 *Gastroenterostomie mittelst elastischer Ligatur. G. Tiefenthal
52 *Verwendung der Killian'schen Bronchoskopie bei der Pneumotomie. E. Schefold.
53 *Myxofibrom des Nervus peroneus.* Custodes.

39. **Embolism of the Lung Following Laparotomy.**—Gebele reports clinical and experimental experiences which show that a large percentage of the lung affections observed after laparotomy are due to embolism. In experimenting on 40 rabbits he noted after laparotomy an embolic lung affection in 12, and an embolic pneumonia in 4. Embolism, therefore, should be regarded as an important factor in the development of lung complications after abdominal operations. About a third of the lung infarcts are followed by pneumonia. Infection is indispensable, but this may occur primarily with the embolus or may follow later. Embolic pneumonia is hemorrhagic at first, before there is abscess formation, and it is usually insular, the foci generally locating beneath the pleura. He reviews the experiences of others, especially Mikulicz' report of 143 cases of pneumonia occurring consecutive to 1,781 laparotomies, almost half of the pneumonias terminating fatally. Gebele's article issues from von Angerer's clinic at Munich, and reports 77 or 6.43 per cent. cases of pneumonia following the laparotomies between 1892 and 1902. Out of the 77 cases 14 (1.17 per cent.) were of embolic origin, and 8 were suppurative pneumonia. He was unable to detect any special connection between the nature of the operation and the embolic complications.

40. **Complicated Fractures.**—Klauber reviews the experiences at the Prague clinic (Wölfler's) during the last [illegible] years. The proportion of cases treated conservatively is increasing every year.

43. **Differential Sign of Varix and Femoral Hernia.**—[illegible] states that when the varix is compressed with the finger

and then the compression is abruptly removed, but with the fingers still in contact, a distinct buzzing is felt similar to that felt over the thorax in certain cardiac defects.

50. **Pancreas Necrosis.**—Boehm regards gallstones as an important factor in the development of necrotic processes in the pancreas. He reports 6 new cases of necrosis of this organ, and emphasizes the necessity for prompt surgical intervention, even in the apparently hopeless cases. He describes the care necessary to prevent complications, etc.

51. **McGraw Elastic Ligature.**—Tiefenthal commends the elastic ligature, as his experimental tests with it were all pre-eminently favorable.

52. **Bronchoscopy and Pneumotomy.**—Schefold relates that a young man who presented some of the symptoms of tuberculosis was treated in a sanatorium and referred to a hospital with the diagnosis of abscess in the lung. Bronchoscopy revealed a shirt stud in the lung. The stud was removed by operation, but recovery was delayed by empyema., The bronchoscope rendered valuable services during evacuation of the abscess.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

54 (XXX, No. 52, December 22.) *New Method of Obtaining Antibodies.—Ueber ein neues Verfahren zur Gewinnung von Antikörpern. F. Loeffles
55 *Beitrag zur Frage der appendicularen Perforations-Peritonitis nach Trauma. Henning.
56 *Wearing Out of Nervous Apparatus Without Due Repair—Die [illegible] systems. L. Edinger.
57 Influer [illegible] Water—Ueber die Beei [illegible] durch Meerwasser H. Leo.
58 Die Elektrotherapie der Herzkrankheiten in Verbindung mit der Nauheimer Kur (in heart disease). P. C. Franze
59 *Protection of Wounds by Zinc Chlorid Eschar.—Schutzt der Chlorzinkschorf aseptische Wunden gegen eine Infektion mit virulenten Bakterien? P. Bröse.
60 Antikörper des Streptococcen- und Pneumococcen Immun-Serums (antibodies). E. A. Wright (London).
61 Zur Kenntnis und Behandlung des Gallensteinleidens (biliary lithiasis). H. Kober.
62 Patents of Interest to Physicians—Technische Neuheiten aus den Gebieten der Medizin, öffentlichen Gesundheitspflege und Krankenpflege. Kalckhoff.

54. **New Technic for Obtaining Curative Sera.**—Loeffler's new method for obtaining antibodies was described in an editorial in THE JOURNAL, page 221.

55. **Appendiceal Perforation Peritonitis After Trauma.**—Henning found two fecal concretions in an appendix removed on account of peritonitis following perforation of an ulceration. The patient had been kicked in the abdomen by a horse a few days previously. The fecal concretions in the appendix were evidently old ones, the lumen between them and proximal to both being entirely obliterated, showing their age, and yet they had never caused symptoms. These fecal concretions might never have caused trouble if it had not been for the trauma.

56. **Wearing Out of Parts of Central Nervous Apparatus Without Normal Repair.**—In this third article Edinger considers the wearing out of predisposed nerves from mere functional use. The postsyphilitic affections are analyzed in detail. The anatomic lesion in these seems to be the simple disappearance of the nerve tracts and their substitution by neuroglia. This functional using up of the true nerve substance might be expected in these cases to affect principally the nerves which have most functional demands made on them, and this is what is observed in reality. Sleeping or waking, the spinal cord is constantly receiving impressions from bones, muscles, joints and skin, and the spinal cord suffers first and most. Excessive functioning can be traced in nearly every case of ataxia. It seems difficult to recognize this when a tailor, for example, suffers from ataxia of the legs, but it will probably be found that he lives in an upper story and for years has had to climb several long flights of stairs several times a day. In one instance a syphilitic had had no symptoms of ataxia, but a pedestrian tour, during which he carried a satchel, brought them on, the arm carrying the satchel being first affected and then the legs. After complete rest he recovered, but any over-exercise caused a recurrence of the ataxia. Writers have described cases of tabes without ataxia, but the subjects were women or men with sedentary occupations, none exposed to overexertion. Excessive functioning would probably bring it on in these cases also. The same is true of the postsyphilitic motor symptoms, the pupil reflexes and the disturbances in the eye muscles. Bone and joint affections are also observed from this same wearing out of the nerves without normal repair, and in this respect must be noted the possibility of mechanical destruction of the tissues, which have lost their sensitiveness from the lack of the normal protecting nerve reflexes. In confirmation of this assumption that a connection between the spinal cord and the bones is indispensable for the normal maintenance of the latter, he cites Goltz' experiments. At different sittings long stretches of the spinal cord were resected at intervals of several weeks. At each succeeding operation the vertebræ were easier to cut, until at the last they could be cut with ordinary scissors.

59. **Protection of Wounds with Zinc Chlorid.**—Bröse's researches were conducted on rabbits and demonstrated convincingly that a wound cauterized with a 50 per cent. solution of zinc chlorid is protected against infection. Even with extremely virulent infection, and when an interval of a minute had elapsed between the wound and the cauterizing, the animals were absolutely protected. Notwithstanding this his researches failed to show that zinc chlorid can be regarded as a disinfectant, even in the strongest solutions. His researches further demonstrated that the results of infection differ accordingly as the germs come in light contact with the wound or are driven forcibly into it.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed page 510.

63 (LVIII, No. 5.) *Infantile Gastrointestinal Catarrh.—Studien über Magen-Darmkatarrh bei Säuglingen. C. E. Bloch.
64 *Ueber Pollakiurie und Enuresis im Kindesalter (in childhood). O. Reinach.
65 *Ueber Spondylitis mit bes. Berücksichtigung des späteren Verlaufs derselben (later course). A. Hugelshofer.
66 (No. 6.) Zur Kenntnis der Cerebrospinal-Flüssigkeit in einem Fall von chron. Hydrocephalus. L. Langstein.
67 Zur Lehre von der Rachitis. F. Siegert (Strasburg).
68 *Die Hysterie im Kindesalter (in children). Bruns (Hanover).
69 *Ibid. M. Thiemich (Breslau).

63. **Gastrointestinal Catarrh in Infants.**—The findings in the cadavers of 10 infants indicated that the inflammation in the intestinal mucosa had been mainly restricted to the ileocecal valve. It rarely extended into the small intestine and then but a short distance. In the large intestine the inflammation spread more. In a few cases there was slight inflammation in the duodenum, but, as a rule, the small intestine was free from any decided inflammation. The superficial epithelium and the glands were generally in good order. Bloch's study of the subject is illustrated and the details of his material are carefully sifted.

64. **Enuresis and Pollakiuria in Children.**—When these conditions have no organic cause, Reinach refers them to a neurosis on a psychic basis as the single cause in the majority of cases. Even when hysteria is not evident in the child it can usually be traced—or alcoholism—in the parents. The enuresis may be the only symptom of hysteria, as in children this is apt to be limited to one or two symptoms. There may be merely a latent tendency to hysteria and some inciting cause may arouse it. The nervous centers that control the evacuation of the bladder seem to be especially unstable during childhood. When measures directed against hysteria fail, the condition is probably more of the neurasthenic order, and weak electric currents, hydrotherapy, tonics and country air will gradually put an end to the trouble. Local measures, such as massage from the rectum, raising the foot of the bed, etc., have not proved very successful in his hands.

65. **Later Course of Spondylitis.**—Hugelshofer observed abscesses in two-fifths of the cases of spondylitis at the Children's Hospital at Basle. There was paralysis later in 10 per cent. As this occurs predominantly in cervical spondylitis, and as two thirds of the cases terminated fatally, this must be regarded as the most dangerous type. Amyloid degen-

seen too late for conservative treatment. In 29 of the patients the process was too advanced for any intervention. About 371 patients were treated with resection followed by pouring his iodoform filling into the cavity. This list includes 67 children under 10. All were cured and dismissed in a relatively short time with completely healed wounds and usable limbs. Owing to the infectious nature of the tubercular focus, the danger of its spread should impose its prompt removal as the only rational means of treatment. (See 16 above.)

98. **Significance of Differences in Radial Pulse as Arm is Raised.**—Sorgo is physician in chief to the sanatorium at Alland. He noted in certain of the inmates that the radial pulse in one arm differed from that of the other as the arms were raised or lowered. Comparison of the findings with the known anatomic and physiologic conditions has shown that this difference is due to some pathologic process involving the apex. In a case of endothelioma of the pleura the radial pulse was much stronger on the sound side when the arms were hanging, but this difference vanished as both arms were raised above the head. This vanishing of the difference as the arms are brought into certain symmetrical positions excludes the possibility that the phenomenon is due to anything abnormal in the origin or course of the vessels involved. He has examined 398 patients for this sign, and 31 were found who showed these differences in the radial pulse influenced by the position of the arm. In 10 patients, the difference was marked, but vanished as the arms were raised. In one patient the radial pulse became stronger as the arms were raised above the head, strongest on the left side. In 10 patients there was no difference in the radial pulse as the arms hung down, but a difference became evident as the arms were raised. In 6 there was no difference as the arms hung down, but when they were raised the pulse became very weak, and showed a great difference. In 5 others the difference was marked all the time, but became still more pronounced as the arms were raised vertically. It was instructive to see in some of the cases how this difference in the radial pulse developed under the physician's eyes as the pathologic process in the lungs progressed. The difference noted is probably due to adhesion of the pathologic apex to the subclavian artery. As the arm is raised, the traction on the vessel from the adhesions is corrected as the parts are brought into other positions, and the pulse becomes alike in both arms. A difference in the pulse, therefore, in a case of tuberculosis may be accepted as a sign that retraction of the lung is commencing or has continued for some time.

99. **Physical Investigation in Cholelithiasis.**—Fink's experience at Carlsbad has shown that 66 per cent. of gallstone cases are accompanied by icterus. This emphasizes the necessity for examination of the liver in such cases. Better information is derived when one hand is placed at the back and the liver is pushed up from below toward the palpating fingers of the other hand applied to the liver in front. The hand underneath should not exert an even pressure on the liver, but should push it up in a series of light, gentle upward movements. The special ways to hold the fingers and to take advantage of all the possible findings, even in very corpulent subjects, are described in detail.

100. **Hair Ball in Stomach.**—Ranzi recently had occasion to

101. **Radical Operation for Tubercular Ileocecal Tumors.**—Fröhlich has removed an ileocecal tumor in 3 cases, with recovery of 2 of the patients. In one case the affection was evidently primary; in the others it probably originated from swallowed sputa, the primary lung process not being very advanced. Complete removal of a primary tumor is urgently indicated, and, even in the secondary cases, it is indicated likewise, as the primary focus is liable to heal. This was the satisfactory result in one of his cases. In the fatal case, death resulted from gangrene of an adjacent loop of intestine, after the resection of the tumor.

102. **Treatment of Hypertrophied Prostate.**—Nicholich's success in treating a case of complete retention from hypertrophied prostate was described, with his technic, on page 2,005 of the last volume of The Journal. He has only one patient still alive and healthy out of 10 prostatics operated on by other technics; all the others succumbed to acute or chronic pyelonephritis. His new technic consists in transvesical prostatectomy, after which the bladder is distended with a large amount of iodoform gauze packed in and left for two or three days. This prevents too rapid retraction of the bladder, compresses the walls and thus prevents hemorrhage, while it ensures antisepsis and drains away the urine as soon as it accumulates. He here reports a second case operated on by this technic. The patient's bladder reached above the umbilicus, and he was rapidly restored to health by the operation described.

103. **Medical Radiology as a Separate Branch of the Medical Sciences.**—This article was presented by Holzknecht and Kienböck to sustain their plea for a separate chair for radiology in the medical faculty. Their request was granted, and Vienna is the first city to have special instruction in medical radiology. The two authors were duly appointed instructors in the new branch.

104. **Operative Treatment of Mammary Cancer.**—Meisel reviews the 247 cases of mammary cancer operated on at von Eiselsberg's clinic at Vienna. About 18 per cent. of the patients were permanently cured. The comparative value of the various methods of operating can be determined only by reference to the stage in which the operation was undertaken. As a measure for comparison, he suggests that the percentage of patients who succumb to internal metastasis after an operation without local recurrence, might prove useful as a criterion for determining the actual comparative value of various technics. The proportion of permanent cures with the Volkmann technic was much higher than with the Heidenhain, and approaches closely that obtained by Halsted.

107. **Slow Chloroforming.**—Effertz has observed in Mev[illegible] a mode of administering chloroform which was free from the slightest trace of the stage of agitation and nausea. A few drops of chloroform were poured on a cloth and held at a distance of about four inches from the patient's face. The chloroform was renewed from time to time, and the patient was ready for the operation in two or three hours. This length of time was required before the narcosis was complete. Nearly ten ounces of chloroform were used in each case.

108. **Fibromyomata in Pregnant Uterus.**—Fernwald

nued last year his efforts to stamp out malaria at certain ints on the Austrian shore of the Adriatic, described in these lumns a year ago. The results confirm the possibility of diating the disease in a protected zone in the midst of a ked of malaria, and keeping that zone free from its reim rtation.

113. **Injuries of Thoracic Duct.**—Graff calls attention to e fact that 75 per cent. of the 26 cases of operative injury the thoracic duct on record resulted in recovery when the ct was ligated, with or without suture. On the other hand, y 19 per cent. recovered out of those treated by tamponing ze. A ligature can be thrown around the thoracic duct in neck without the slightest injurious consequences for the anism in general.

14. **Etiology of Spring Catarrh of the Conjunctivae.**—hich reported last year several cases of summer eruptions which the eyes showed the condition of spring catarrh at same time as the skin developed the summer prurigo or roa *vacciniforme*. He proclaimed then that the findings he eyes suggested the probability that they were due like- to the action of sunlight. Dimmer treated a recent case on this assumption. The patient was a young miller, who presented a typical bulbar catarrh, with tions during the summer, not entirely subsiding the cold months. One eye was covered with a black and under this the eye recovered its normal aspect two weeks, except for a slight congestion of the bulbar nctiva. Special spectacles were then worn which pro- the eyes completely against sunlight while not inter- ng th the lids or access of air, and the patient has since manently cured. Dimmer reviews the literature to ermine the geographical distribution of spring catarrh. It ms to harmonize with the assumption of the importance of light in its etiology, or, at least, does not contradict it.

115. **Modern Theories in Regard to Digestion.**—Oefele's pre- s communications on the scientific analysis of the feces n been mentioned in these columns. (See 90 *above*.) He n comments on the multiplicity of the processes that occur he long route from the mouth to the anus, the action of , mouth, throat, gullet, stomach, etc., and the secretions he various glands and organs on the way. In our study hese various processes we must not forget to study the stive function as a whole. Coprology must learn the position of the feces under all kinds of normal conditions, study all the influences which are liable to distuıb its rage composition, before it is possible to detect the patho- conditions and base treatment on their indications.

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29 (No. 19.) *Behandlung der Varicen durch die Ligatur und die künstliche Thrombose. Tavel.
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31 Spontaneous Subsidence of Cancer on Neck.—Merkwürdiges Verschwinden einer krebsartigen Geschwulst im Halse. T. Zangger.
132 (No. 20.) Ueber das Wesen der Röntgenstrahlen und der Radioaktivität. E. Sommer.

1. **Functional Kidney Tests.**—In Wildbolz' experience, de- nation of the freezing point of the urine invariably gave results which corresponded in every respect with those of other functional tests and with clinical experience. He describes the details of his most instructive cases. Catheterization of the ureters was always able to locate the site of the lesion, which it would have been impossible to determine by any other means at his command. The freezing point of the urine then revealed whether the other kidney was functioning normally. The results of the operation, both immediate and remote, invariably confirmed the findings.

120. **Elimination of Chloroform by Vomiting.**—It is Gelpke's practice to promote vomiting after most operations requiring chloroform narcosis. He is convinced that this is an important means of elimination of the chloroform. He has the subjects drink copiously of chamomile tea, and observes that the discomfort following the narcosis is much more fleeting when the vomiting is free and unchecked. In 22 cases in which the chloroform narcosis lasted from 20 to 60 minutes, the test for chloroform was always positive. He filters the vomitus and adds a drop of anilin and a little caustic soda, then heats to the boiling point. In the presence of chloroform, there is an unmistakable, pungent odor of isonitril. This test was devised by Bunge of Basle, and is very accurate and sensitive. The vomitus must be kept in an air-tight receptacle until the test is applied to prevent evaporation of the chloroform.

121. **Congenital Defect in the Septum of the Ventricles**—Müller has had a case of congenital defect in the interventricular septum under observation for nineteen years. There has been apparently no disturbances from the defect, not even during a pregnancy. In 8 other cases, the subjects have been seen constantly at intervals for from three to twelve years. The defect in the septum was unmistakably apparent by the physical signs, but there was no cyanosis, and the general health of the subjects did not appear to suffer from this cause. In 2 cases, the diagnosis of persistent ductus arteriosus had been made during life, but examination after death revealed an opening in the interventricular septum. In all these cases the auscultation findings were characteristic, a long, loud, clear bubbling or blowing murmur which terminated with the diastolic sound without any interval. The murmur is characteristic of a jet being forced through a narrow opening under great pressure. A murmur of such loud, rough, rasping quality is never encountered in mitral incompetency nor in case of congenital pulmonary stenosis. It resembles more the murmur frequently heard in case of aortic stenosis. It never had a musical character, but was sometimes audible at a distance of several centimeters. Simultaneously with the murmur, the systolic sound is louder, heard when the ear is slightly raised from the stethoscope. The maximum of the murmur is heard over the left margin of the sternum, below the third rib, exactly over the defect in the septum of the ventricles. In 2 instances it was also loud in the right second interspace. As the murmur is so loud it is audible over the *mitral* and pulmonary or aortic areas, but its maximal point does not correspond with that of either of these. With a single exception, a fine systolic thrill was felt at the point where the murmur was the loudest. In one instance, the thrill was felt also in the second right interspace, in another above the sternum and along the right margin of the sternum below the third and fourth ribs. Another characteristic point is the long stationary persistence of the physical signs. Both sides of the heart are liable to become somewhat enlarged in the course of time. In one of his cases he was able to diagnose dilatation of the pulmonary artery, confirmed by radioscopy, but mistakenly accepted this as a sign of persisting ductus arteriosus. Dilatation of the pulmonary artery was found postmortem in 4 cases on record, and of the pulmonary artery and aorta in 2 others. Eight of his 9 cases were females, and all presented the aspect of good health. In 3 cases severe pulmonary disease developed, in the course of which pronounced cyanosis became manifest, as also in a case of a complicating heart affection. In his patients, the congenital defect was noted